

HOME Computing WEEKLY

EXCLUSIVE!

**First ever
review of Romik's
Captain Starlight**

Acorn squashes rumour

The British microcomputer industry is fitter than ever says Chris Curry, Acorn's managing director.

At a press conference Mr Curry said that sales of the BBC computer over Christmas were at the 100,000 level and a similar number of Electrons were sold.

These figures are double those of last year and show that Acorn sold over twice as many machines in 1984, compared with 1983.

The conference was called to dispel rumours that the company was in trouble. "It's true, we were disappointed
Continued on page 5

48K Spectrum dead

In a surprise move, Sinclair announced it is to cease production of the 48K Spectrum.

It is to be replaced by the new Spectrum Plus which has been slashed by £50. The Plus model will now sell for just £129.95, but without any free software. Previously the Plus was sold with six cassettes, but you can still buy the pack with your Spectrum+ for £14.95.

The difference between the two machines is the 'real' keyboard. A number of peripheral manufacturers have been supplying keyboards for the Spectrum with a variety of features not available on the basic rubber keyboard.

The Plus has a full keyboard
Continued on page 5

**Have a Wally
of a day out!
Design a
badge and win
heaps of
prizes**



SURVIVOR



ANIROG

SURVIVOR Search the haunted rooms of Deadstone Abbey for the untold treasures left from years gone by. However, as you help Angus around the ancient building beware of the evil spirits who will chase Angus wherever he goes. All he has to defend himself is his trusty gun and porcupine bombs. Luckily for Angus there are various objects lying around the Abbey such as ammunition, money bags, and bottles of life giving elixir. There are 1008 various rooms all presented in remarkably clear and colourful graphics with beautifully smooth scrolling screens. Ahead lies a terrifying challenge for Angus and its up to you to help him. Are you the sole survivor!

AMSTRAD £7.95

HOUSE OF USHER Enter the House of Usher at your own risk, as you may never leave again. However, once inside there is a choice of nine rooms to select. Behind each door is a totally different action packed arcade game, each of which are certain to strain your nerves to the limit. If you manage to get through these nine rooms another two secret rooms (x and y) will appear, but beware the evil powers of the House of Usher.

AMSTRAD £7.95

FLIGHT PATH Flight Path is without doubt the best flight simulator on the C/16 and Amstrad. The many elaborate features include; Altometer, flaps, directional headings, crosswinds, fires, ground warning lights and reverse thrust to name but a few. Also included are smooth graphics as you take off, cruise over mountains, and land once again.

AMSTRAD £8.95

3D TIME TREK As sole survivor of the planet "Corillian" your quest is one of anger and revenge. The starship you are flying is full of the latest inboard computers and extra powerful sensors. Also included are full 3D graphics, to add unbelievable realism to this fantastic journey through time itself, and beyond.

AMSTRAD £7.95

MOON BUGGY You must skillfully manoeuvre your jumping patrol vehicle over dangerous moon craters as well as large boulders and cunningly placed mines. Not only this but avoid the hovering alien spaceship as it bombards you from above.

AMSTRAD £7.95

Mail Order: 8 HIGH STREET HORLEY SURREY 24 HOUR CREDIT SALES HORLEY 02934 6083 Payment by: P.O. - ACCESS - VISA

AVAILABLE FROM YOUR COMPUTER STORE

BUY THIS SPACE TO ADVERTISE YOUR LATEST PRODUCTS!
 Ring Margaret or Ian on 01-437 0626. NOW!

Home Computing WEEKLY

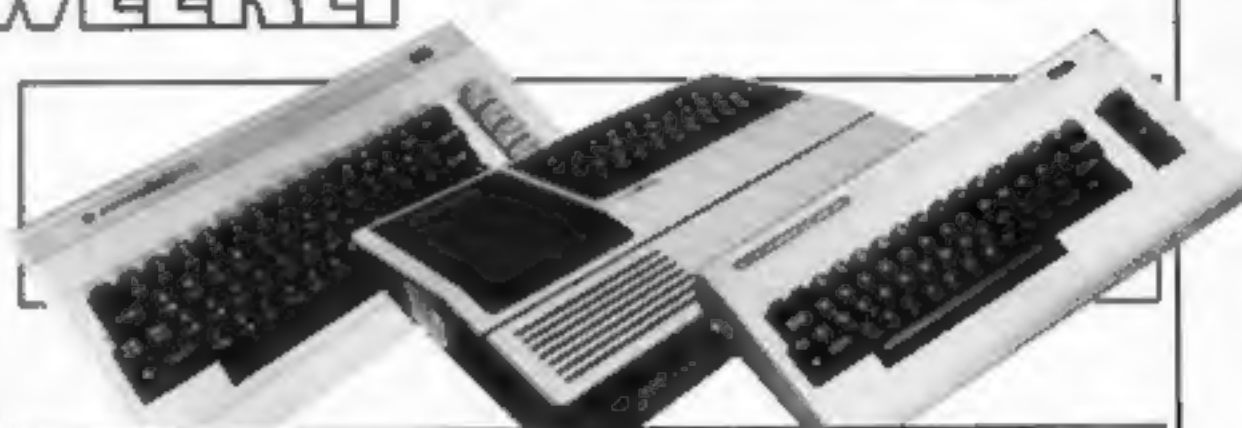
BUY THIS SPACE TO ADVERTISE YOUR LATEST PRODUCTS!
 Ring Margaret or Ian on 01-437 0626. NOW!

REGULARS

News	5,6
Mikro-Gen competition	8
Design a Wally and win a great day out — plus heaps of software	
Letters	42
Gallup software chart	45
The chart you can trust	
Classified ads start on	46

SOFTWARE REVIEWS

Weird and wonderful	14
Try your luck in exotic locations	
Starlight exclusive	17
The first review of Romik's new release, Captain Starlight	
Useful handful	32
Utilities to keep your micro busy	
In depth	41
Two extended reviews of new software for your Commodore	
A taste for adventure	44
If you like adventures you'll love this page	



SPECIALS

1984 Hi-score	13
Thumbs up and thumbs down to the most memorable Beeb games of 1984	
Insight on the Amstrad CPC464	15
How to set up the RSX and get it working	
BBC programming	23
Error trapping numbers on the BBC	
Special review	24
Close-up on Oric assemblers and monitors	
QL Bookware	35
Reviews of the latest titles for the QL	

PROGRAMS

Oric/Atmos	33
Two for the price of one	
VIC-20	18
They're coming to get you!	
Commodore 64	28
Snakes and mushrooms	
Spectrum	30
Space battle	
ZX81	33
Full screen editor	
VIC-20/Commodore 64	36
Helping hand — four utilities	

Software houses: send your software for review to the editorial office at the address below. Contact us for competitions and other promotions, too

Readers: we welcome your programs, articles and tips

HOME COMPUTING WEEKLY
BRITAIN'S BRIGHTEST

Editor
 Dave Carlos
Deputy Editor:
 Liz Graham
Editorial Assistant:
 Marie Curry
Designer:
 Bryan Pitchford

Group Editor:
 Wendy Palmer
Production Assistant:
 Kerry Fowler

Advertisement Manager:
 Margaret Ryan
Sales Executive:
 Ian Atkinson

Divisional Advertisement Manager:
 Chris Northam
Classified Advertising:
 Becki Wilson
Chairman:
 Jim Connell

Argus Specialist Publications Ltd.
 No.1 Golden Square, London W1R 3AB. 01-437 0626

Home Computing Weekly is published on Tuesdays. Subscriptions and back issues: Infonet Ltd, 10-13 Times House, 179 Marlowes, Hemel Hempstead, Herts HP1 1BB. 0442 48432. Trade distribution: Argus Press Sales and Distribution Ltd, 12-14 Paul Street, London EC2A 4JS. 01-247 8233. Printed by Alabaster Passmore & Sons, Ltd, of London and Maidstone, Kent. Design and origination: MM Design, Circus House, 26 Little Portland Street, London W1N 5AF

48K SINCLAIR ZX SPECTRUM



BBC MODEL B 1.2 OS

48K SINCLAIR ZX SPECTRUM



48K SINCLAIR ZX SPECTRUM



COMMODORE 64



"KNIGHTLORE", "UNDERWURLDE", "SABRE WULF", and "STAFF OF KARNATH" recommended retail price £9.95 inc VAT. Available from W.H.SMITH, BOOTS, J.MENZIES, WOOLWORTHS and all good software retail outlets. Also available from ULTIMATE PLAY THE GAME, The Green, Ashby-de-la-Zouch, Leicestershire LE6 5JU (P&P are included) Tel: 0530 411485

48K Spectrum dead

From front page

in the style of the Sinclair QL. This has been roundly criticised for its lack of feel and the peculiar angle of the keys. It would appear that in the future users will have little choice in terms of keyboard style.

If you're looking for a real bargain you may be able to find the 48K model in the shops at a good discount. Sinclair has ceased to recommend a price for this machine and some London stores are offering them at under £100. Chances are that prices could fall even lower.

Those who want to add the Plus keyboard to their 48K models can now do so, as Sinclair is offering an upgrade kit. If you feel computing should be a do it yourself hobby, you can purchase the kit for £20. Those with more nervous fingers should send their computer to Sinclair and will be charged £30.

Sinclair Research, Stanhope Rd, Camberley, Surrey

Acorn squashes rumours

From front page

about sales of the Electron which were 25% less than we had predicted', Mr Curry admitted. 'But the BBC is still selling at a very high level and our stocks are normal'.

At the same time he announced a range of price cuts and incentives. The Electron has been slashed by £70 to £129, making it a direct competitor with the Spectrum Plus. This move had been expected since the Electron was launched and means the machine will be much more attractive for users at home and in education.

There is also to be a trade-in scheme on the BBC micro. Anyone taking any type of computer into an Acorn dealer will be able to claim £50 off the price of a new BBC. Chris Curry announced there will be no recommended retail price on the machine so this offer can be deducted from the best price the buyer can find.

BBC machines have been selling as low as £349 so this could mean you can carry away a BBC for less than £300 if you have a computer to trade.

Asked what Acorn would be doing with all this hardware, Chris Curry suggested they might be able to sell them at a profit; otherwise they were looking for a large hole.

Schools are also to benefit from Acorn's largess. The Acorn Micros in Schools Scheme will continue where the DOI Micros in Schools scheme left off. Under this new incentive schools will be able to get Acorn micros cheaper and in special packs. A number of these packages will be based on the Electron and this will be more attractive when Econet is released.

Despite all this squashing of rampant rumour Chris Curry would not give any details about the new improved BBC. He confirmed its existence, but refused to give firm dates or details. Rumour suggests it will have 32K of user RAM with special 'shadow RAM' to cope with the screen memory requirements in any mode. This would bring the BBC in line with some of the more modern machines.

Mr Curry was keen to emphasise Acorn's policy of software compatibility: 'Our users are very secure in that respect', he claimed. With over 700,000 Acorn computers currently being used this will be of great interest to BBC owners and especially to schools, of which some 70 per cent have BBC machines.

Acorn, Cherry Hinton, Cambridge

Apologies

Calling all winners of the Palace and Warwick competitions.



Price slashed to £129.95

Due to an unfortunate clerical error the prizes for these competitions have been despatched to the wrong addresses.

If you were a winner in either of these competitions, please would you return to our editorial address any software which has been sent to you, giving full details of your name and address so that we can send you the correct prize.

We apologise to readers, Palace and Warwick for any inconvenience caused.

Titanic dream

Tomorrow's Dream is a new software house, based in Bristol. It's first release is Titan, a debugging monitor utility for the BBC. The company specialises in utilities for both the BBC and Spectrum.

Titan costs £10 and £12 on cassette and disc respectively.

Tomorrow's Dream, Richmond Hse, 1B Sydenham Rd, Bristol BS6 5SH

Hard nut to crack

Tower of Despair, from Games Workshop, is apparently causing just that to the authors. Adventurers have been finding it a hard nut to crack, and subsequently pestering Russell Clarke and Mike McKeown for help.

To save themselves, and of course Tower players, more hours of explanations and advice, the duo has put together

a hints leaflet. This is available free, with an SAE, from Mail Order Dept, Games Workshop, 27/29 Sunbeam Rd, London NW10.

The Key of Hope, no doubt the remedy to despair, will be released by Games Workshop in March. It's the follow-up to Tower of Despair.

Raid on MSX

Two popular games by Activision have been converted to run on MSX computers. Pitfall II features Pitfall Harry and his sidekick Quickclaw in search of Harry's niece Rhonda. In River Raid, tanks, choppers, ships and jets try to prevent you destroying the supply bridges on the river.

These are Activision's first MSX titles and they both cost £11.99.

Activision, 5/7 Forlease Rd, Maidenhead, Berks SL6 1RP

Combat, Karn and crime

Interceptor Micros has released three new games, two for the C64 and one for the VIC-20.

The Commodore games are Front Line and Empire of Karn. Front Line places you at the controls of the Death Tank Interceptor, which has exceptionally strong armour plating and self-repair capabilities. You must reach captured supply dumps, defending yourself against enemy air and land superiority.

Empire of Karn is the sequel

to heroes of Karn and continues the story as you try and save the empire from Zhef. Both C64 titles cost £7.

Villain for the VIC-20 costs £6, and it's an arcade game. You take the part of the villain embarking on a life of crime. Watch out for the relentless PC Plodd on your trail!

Interceptor Micros, Lindon Hse, The Green, Tadley, Hants

Using Europe

Kosmos, a software house specialising in educational software, has launched a new program called Identify Europe for the BBC and Electron.

The program is suitable for all ages, including adults, and Kosmos claims it is both entertaining and instructive. Questions are based on a multiple choice format and follow Kosmos' philosophy of instructing the user even when an incorrect answer is entered.

Priced at £7.95 for the BBC and Electron version, Kosmos is planning Spectrum and C64 versions later in the year.

Kosmos, 1 Pilgrims Close, Hurlington, Dunstable, Beds LU5 6LX

Spectrum/C64 first

Orpheus has just released its first program for the Spectrum. The game is called Underworld — The Village, and is a text adventure. A newspaper cutting puts you on the trail of hidden treasure, danger and numerous puzzles, all in the setting of a sleepy village.

Written using the Quill, the adventure features 150 locations and is priced at £4.95.

Orpheus has also released Megabase, a database system for Oric 1/Atmos and CBM 64. It is Orpheus' first CBM 64 product.

The program is available on cassette and disc in a ring binder with a comprehensive manual. It costs £24.95 on the CBM 64 and £17.95 on the Oric-1/Atmos.

Orpheus, The Smithy, Unit 1, Church Farm, Hatley St George, Nr Sandy, Beds SG19 3HP

Dr Beeb

BBC micros have found their way into the world of medicine. At Edenhall Hospital in Scotland they are being used to



BBC computers being used at Edenhall Hospital

give disabled patients training in skills using specialist software.

Dr Graham Creasey, from Edenhall's Spinal Unit, said: 'They make life more pleasant and provide some hope for future employment.'

The BBC computers are also being used in a long-term research project connected with the nervous system. It is hoped that this will eventually lead to success in enabling paralysed people to walk.

Acorn Computers, Fulbourn Rd, Cherry Hinton, Cambridge CB1 4JN

Tandata drop

Tandata Marketing's Tm200 multi baud rate modem has been reduced in price from £217 to £173, excluding VAT.

Roy Pendleton, Tandata managing director, said: 'The price cut has been made possible by the increased volume of production and sales throughout our product range which enables us to pass on the benefit to our customers.'

Tandata, 34 Ellerker Gdns, Richmond, Surrey TW10 6AA

Champion challenge

For those who feel capable of challenging a world champion, Martech is releasing Brian Jacks' Superstar Challenge in March.

Based on the popular TV series, Superstars, the game gives you the chance to compete against Brian Jacks, world

famous judo expert and Superstars champion. You can take part in eight events including squat thrusts, canoeing and football.

The game costs £7.95 on the Spectrum, BBC, Electron and Amstrad and £8.95 on the Commodore 64.

Also in March, Martech is releasing the Living Body, a package based on Channel 4's medical series of the same name. The pack contains six programs including Getting to Know Your Insides, Heart Operation and So You Think You Can Breathe. There is also a 32-page full colour booklet.

It will be available for the Spectrum, Commodore 64, BBC and Electron priced at £19.95. C64 and BBC disc versions will cost £24.95.

Free tape

Micro Dealer UK is offering a £5.95 Azimuth Alignment Tape free with every Omega Data Recorder.

According to Micro Dealer, the Omega offers a higher level of reliability than other recorders and has a digital tape counter and external remote control as standard. There is also a built-in microphone and the facility to use an external one.

The Omega is priced at £24.95 and is available only from Micro Dealer.

Micro Dealer UK, 29 Burrowfield, Welwyn Garden City, Herts AL7 4SS

Winners all

There were seven game titles hidden in our Bug-Byte word-square. Here are the names of

the 45 winners: P Saull, Ongar; G Jones, Glasgow; R J Henthorn, Newport; C Huckins, London; J Hughes, Manchester; S Brown, Exmouth; M McIntyre, Newport; B Laing, Aberdeen; D Hamilton, Glasgow; G Taylor, West Germany; F Rickshaw, Coventry; J Bell, Gosport; E Mason, Hove; E Haggerty, Blyth; A C Williamson, Brighton; J Dobson, Manchester; E C Jones, Coventry; A Lewis, Winsford; P F Gunner, Farnham; M Siemaszkiewicz, London; A Jones, London; S Wu, London; D Robson, Derby; P Websdale, Derham; C F Brown, Leeds; P Gasan, Stroud; J Humphries, Aveley; A Botton, Hull; T Pears, Gateshead; D Thorpe, Exeter; J Brewin, Glen Parva; R Miller, Newcastle upon Tyne; H K H Mistry, London; M Johns, Hove; D Anderson, Glasgow; M Aldorino, Gibraltar; C J Kay, Ashton under Lyne; C Barnes, Nottingham; A Hughes, Barnsley; D Smith, Melton Mowbray; I Marsh, Bristol; W Sisson, Wolverhampton; A May, Scotland; M Jones, Towcester; D E Nicholls, London.

Well done!

There were eight differences to spot in our Death Star competition. Here are the names of the 30 winners: J D Thompson, Tidworth; D Quay, Camberley; R Mackenzie, Rochdale; J M Dawson, Middlesborough; S Ackerman, Mitcham; D Richards, London; P Crawley, Hanworth; P Leach, London; L Perry, London; D Schreiber, Chelmsford; D Weerasinghe, London; S Timmons, Poulton le Fylde; J W Chaplin, Bristol; J Walden, Belgium; N Williams, London; K Maghadan, London; J Hayward, Heckmondwike; R Pettigrew, Cheshire; M R Collins, Isle of Wight; A Towers, Blackpool; P Powley, King's Lynn; K Liddell, Grimsby; K W Peterson, Liverpool; N Parkles, Burnley; S Donne, Upminster; A Shirley, Leicester; D A Parish, West Wickham; P Wainwright, Durkar; S Wright, Fife; R Banks, London.

A L I E N



In space no one can hear you scream.



NAVIGATOR
Shy, Skilful and Intelligent — Panics Easily.



EXECUTIVE OFFICER
Direct, Imaginative, Cautious, Loyal.



SCIENCE OFFICER
Secretive, Unlikable, Brilliant — Occasionally Illogical.



CAPTAIN
Solid, Dependable, Courageous — Excellent Leader.



ENGINEERING OFFICER
Physically Strong, Low I.Q., Potentially Rebellious.



3RD OFFICER
Witty, Ambitious, Authoritative, Resourceful.



ENGINEERING OFFICER
Cynical, Rebellious, Untrustworthy, Unflappable.

THE CREW
Personnel files follow yours to command well almost.

MIND GAMES
SPECTRUM 48K · CBM64



Featuring
the unique
Personality Control System

No. 1 Golden Square, London W1R 3AB, Telephone 01-437 0626

£8.95

Have dinner at Wally's and take home a bag of Mikro-Gen goodies. There are 47 prizes in all

Design a Wally

THIS WEEK we've joined forces with Mikro-Gen to bring you an entirely new type of competition. If you own a Spectrum, C64 or Amstrad CPC464 then you

could win a fantastic prize from Mikro-Gen.

Wally is preparing to star in another great game which will have you glued to your screen for hours. It's called Everyone's a Wally and will cost £9.95. You could be the

first person to join him in his latest feats.

To enter you will need a bit of artistic talent, plenty of imagination and a really funny sense of humour. Do you qualify? Then read on.

We want you to design a badge or sticker featuring the ever popular Wally Week. It should be in a similar style to the one shown on this page, but it does not necessarily have to be an anti-piracy slogan. It can be anything to do with Wally as long as it's humorous. Entries will be judged by Mikro-Gen and artistic design and humorous content will be taken into account.

The first prize is an all expenses paid day out to Mikro-Gen, where you will meet the programmers and be taken out to dinner. You will also be the first person to receive a copy of the latest Wally Week game — Everyone's a Wally — plus a selection of other Mikro-Gen titles and a copy of Everyone's a Wally and there are also 40 consolation prizes of Wally's latest game.

Please note that entries cannot be returned. The winning entries may be considered by Mikro-Gen for production as badges or stickers.

So get out your sketch book and start scribbling. There are 47 great prizes waiting to be claimed.

How to enter

Design a badge featuring Mikro-Gen's Wally Week. It can be a drawing of his face or all of him, and he can be in action or expressing an attitude. You can write a suitable caption if you like.

Badges will be judged according

to artistic design and humorous content. First prize is an expenses paid day out to Mikro-Gen's premises in Ashford, at a date which is mutually convenient. If you are under 16, you must be accompanied by an adult. Mikro-Gen will present the first prizewinner with the first ever copy of Everyone's a Winner, as well as a selection of Mikro-Gen games and a Wally T-shirt.

Six second prizewinners will receive Wally T-shirts and Everyone's a Winner, and 40 runners-up will receive Everyone's a Wally.

Entries cannot be returned. The winning entries may be considered by Mikro-Gen for production of badges or stickers.

Seal your design and coupon in an envelope. Post your entry to Mikro-Gen Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Entries close at first post on Friday February 15, 1985.

You may enter as many times as you wish, but each entry must be accompanied by an official coupon — not a copy — and sealed in a separate envelope.

If you are a winner, the coupon will be used as a label to send your prize, so clear writing is essential.

The rules

Entries will not be accepted from employees of Argus Specialist Publications, Mikro-Gen and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies.

The How to Enter section forms part of the rules.



Sample badge from Mikro-Gen



Mikro-Gen Competition

Entry Coupon

Name _____

Address _____

_____ post code _____

Age if under 16 _____

Computer owned (Spectrum/C64/Amstrad CPC464) _____

T-shirt size (small/medium/large) _____

Complete clearly and fully — if you are a winner this will act as a label for your prize. Post to Mikro-Gen Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date: first post, Friday February 15, 1985. Don't forget to follow closely the advice in the How to Enter section.

Two for the price of one

Kong

Kevin Kong has stolen your treasure chest and taken it to his skyscraper home. Your task is to retrieve it — and it won't be easy.

Kevin is rolling barrels down on you, and you must leap over them or be squashed. Jumping in the wrong place will mean getting spiked on evil-looking prongs. There are also rusty patches of scaffolding so you can't stop there. Don't fall through holes in the scaffolding, or over the edge, either.

To climb the scaffolding you must move along the ramps to the ladders and climb them by jumping once you're under them.

You must cope with a time limit: if your time runs out you lost a life. Once you've successfully climbed up a screen, Kevin climbs to the next, to face more barrels or a decreased time limit.

You start off with five lives and your control keys are: left arrow to move left, down

This week we're giving Oric users a double treat — not one but two games. Retrieve the stolen treasure or wipe out the Atmons in this dynamic duo from Andrew Gardner

cursor to move right and space bar to jump. When you press the space bar you jump in the direction you're facing.

Variables

X%/Y% your horizontal/vertical position
X1%/Y1% your old horizontal/vertical position
Y1S/Y2S variables holding graphics to make up man
M%/MV% control direction in which man jumps
J% counter used when jumping
AS/BS variables holding barrels, used for PLOTTING
TL%/T time limit/remaining time on screen

LI% remaining lives
SL% starting number of barrels on screen
SC% your score
HI% hi-score
FS variables used in setting up screen

How it works

30 switch off keyclick/cursor
40-90 series of subroutines which make up the game
1000-1200 set up UDGs
2000-2630 select skill level, set variables
3000-3350 set up screen
4000-4080 move barrels, read keyboard
4120-4220 PLOT your man and

barrels, make screen checks
4230-4270 decrease remaining time
5000-5150 game over routine
6000-6170 you lose a life
7000-7200 screen completed routine
8000-9020 subroutines to change position of man when jumping

Hints on conversion

CLS clears screen
PAPER/INK sets background/foreground colours
PLOT x,y is equivalent to **PRINT AT**, places string given at column x (0.38) row y (0-26)
PLOTTING a number sets a colour attribute
SCRN (x,y) returns ASCII value at position x,y
PEEK (S20)/KEYS reads the keyboard
WAIT n creates a pause for n milliseconds
MUSIC/SOUND Oric sound commands can be replaced or removed
SPC can be replaced by **TAB** or removed

```

10 ** KONG! **
20 MEN BY A.P.GARDNER
30 POKE618,10
40 GOSUB1000 'UDG,B
50 GOSUB2000 'VARIABLES
60 GOSUB3000 'SCREEN
70 GOSUB4000 'GAME
80 GOSUB5000 'END
90 GOTO30 'RE-START
100 REM
990 REM ** USER DEFINED GRAPHICS **
1000 FORP=46000+(97*8)TOP+(10*8)+7
1010 READU:POKEP,U:NEXTP:RETURN
1020 DATA12,26,31,30,12,30,47,47
1030 DATA55,51,30,30,10,30,34,19
1040 DATA12,22,62,30,12,30,61,61
1050 DATA59,51,30,30,10,19,17,50
1060 DATA1,6,4,9,9,4,6,1
1070 DATA32,24,8,36,36,8,24,32
1080 DATA0,63,33,30,12,30,33,63
1090 DATA0,52,33,2,12,0,0,0
1100 DATA33,63,33,33,33,63,33,33
1110 DATA0,0,0,20,42,42,42,42
1120 DATA0,31,32,63,33,32,32,63
1130 DATA0,62,1,63,33,1,1,63
1140 DATA0,0,0,12,30,45,63,51
1150 DATA0,0,7,13,30,27,51,35
1160 DATA30,12,63,63,63,12,63,63
1170 DATA0,0,56,60,30,54,51,49
1180 DATA33,0,3,3,7,6,15,31
1190 DATA63,63,63,45,0,0,0,0
1200 DATA33,0,40,40,56,24,60,62
1990 REM ** VARIABLES **
2000 CLS:PAPER6:INK0
2010 PRINT:PRINT:PRINT"WHAT BARREL LEVEL (0-2)"
2020 PRINT"(0 IS THE EASIEST)"
2030 PRINT:INPUTSLX
    
```

```

2040 IFBLX<BORBLX>2THEN2000
2050 CLS
2060 PRINT:PRINT:PRINT"WHAT TIME LIMIT (12-5)"
2070 PRINT"(12 IS THE EASIEST)"
2080 PRINT:INPUTTLX
2090 IFTLX<SORTLX>12THEN2050
2100 TLX=TLX+10
2110 LIX=5:BCX=0
2120 F#="00000000000000000000000000000000000000"
2500 BLX=BLX+1
2510 IFBLX>3THENBLX=1:TLX=TLX-10
2530 IFBLX=1THENAS=" "
2540 IFBLX=2THENAS="ef"
2550 IFBLX=3THENAS="ef ef"
2560 BS=AS
2600 T=TLX
2610 XX=4:YZ=23:XX=4:YZ=23
2620 JX=0:Y10="a":Y20="b":HX=1:HX=0
2630 RETURN
2700 REM ** SET UP SCREEN **
3000 CLS:PAPER0:INK0
3010 PLOT12,1,"g i g j l"
3020 PLOT12,2,"g i g j l"
3030 PLOT6,3,"m g i k1 g j l"
3040 PLOTS,4,"nop 0000000000 j l"
3050 PLOTS,5,"qrs g j j"
3060 PLOT2,6,"0000000000"
3070 PLOTS,7,"g":PLOTS,8,"g "+AS
3080 PLOTS,9,"g"+F#;PLOT21,9,"hh":PLOTS31,9,"hh"
3090 PLOT11,10,"j j":PLOT29,10,"j l"
3100 PLOT6,13,AS
3110 PLOTS,14,F#;PLOT12,14,"hh":PLOT23,14,"hh"
3120 PLOTS,15,"j j":PLOT25,15,"j j"
3130 PLOT6,18,AS
3140 PLOT4,19,F#;PLOTS31,19,"hh"
3150 PLOT11,20,"j j":PLOT20,20,"j l"
3160 PLOT6,23,AS
    
```

```

3170 PLOT4,24,F:PLOT28,24,"hh"
3180 PLOT4,22,"a":PLOT4,23,"b"
3190 PLOT3,26,"LIVE8":PLOT8,26,BTR*(LIX)
3200 PLOT14,26,"SCORE 8"
3210 PLOT28,26,"TIME"+BTR*(T):PLOT32,26,5
3220 INK3
3230 FORQ=1T03
3240 PLOT11,0,1:PLOT13,0,5:PLOT16,0,7:PLOT19,0,1:PLOT2
2,0,2
3250 NEXTQ
3260 PLOT4,3,4
3270 FORQ=4T05
3280 PLOT4,0,4:PLOT11,0,1:PLOT22,0,2
3290 NEXTQ
3300 PLOT13,5,2:PLOT1,6,1:PLOT2,7,1:PLOT4,7,3:PLOT2,0,
1:PLOT4,0,3
3310 FORQ=9T0248STEP5
3320 PLOT1,0,1:PLOT1,0+1,2
3330 NEXTQ
3340 PLOT1,26,5
3350 RETURN
3990 REM ** THE GAME **
4000 A#=RIGHT*(A#,27)+LEFT*(A#,1)
4010 B#=RIGHT*(B#,1)+LEFT*(B#,27)
4020 IFJX>8THEN4100
4030 PX=PEEK(520)
4040 IFPX=172THENXX=XX-1:HX=-1:Y10="c":Y20="d"
4050 IFPX=188THENXX=XX+1:HX=1:Y10="a":Y20="b"
4060 IFPX=132THENJX=1:NVX=HX
4070 IFPX=188THENJX=1:NVX=0
4080 IFPX<>56THENSCX=SCX+1
4100 ONJXGOSUB8000,8500
4110 IFXX<13ANDYX=8THENXX=13
4120 PLOTX1X,Y1X-1," ":PLOTX1X,Y1X," "
4130 PLOT6,8,B#:PLOT6,18,B#
4140 PLOT6,13,A#:PLOT6,23,A#
4150 IFSCRN(XX,YX)<>32THEN6000
4160 IFSCRN(XX,YX-1)<>32THENHX=1:GOTO6000
4170 PLOTXX,YX-1,Y1#:PLOTXX,YX,Y2#
4180 XIX=XX:Y1X=YX
4190 BRX=BCRN(XX,YX+1)
4200 IFBRX=32ANDJX=8THEN9000
4210 IFBRX=184THENPLOTXX,YX+1," "
4220 IFYX=3THEN7000
4230 T=T-.3333:TX=T
4240 PLOT32,26,BTR*(TX)+ " ":PLOT32,26,5
4250 PLOT19,26,BTR*(SCX):PLOT19,26,5
4260 IFTX<1THENPLOT12,14,"OUT OF TIME":GOTO6000
4270 GOTO4000
4990 REM ** YOU'RE FINISHED **
5000 WAIT100
5010 IFSCX<HIX+1THEN5060
5020 CLS:K#=KEY#
5030 PRINT:PRINT:PRINT"WHAT IS YOUR NAME (MAX 13 CHARB
):":INPUT#
5040 IFLEN(N#)>13THEN5020
5050 HIX=SCX
5060 CLS
5070 PRINT:PRINT:PRINTSPC(4)"KONG'S TAKEN ALL YOUR LIV
EB"
5080 PRINT:PRINT:PRINTSPC(10)"YOU SCORED "+SCX
5090 IFN#<>" "THENPRINT:PRINT"HIGH SCORE IS "+HIX"BY "+N#
5100 PRINT:PRINT:PRINTSPC(9)"ANOTHER GAME (Y/N)"
5110 K#=KEY#
5120 GETK#
5130 IFK#="Y"THENRETURN
5140 IFK#<>"N"THEN5110
5150 CLS:END
5990 REM ** YOU'RE KILLED **
6000 FORQ=18T01STEP-1
6010 MUSIC1,2,0,9
6020 NEXTQ:MUSIC1,1,1,0
6030 FORQ=1T05
6040 PLOTXX,YX-1,"a":PLOTXX,YX,"b"
6050 WAIT20
6060 PLOTXX,YX-1,"c":PLOTXX,YX,"d"
6070 WAIT20:NEXTQ
6080 PLOTXX,YX-1," ":PLOTXX,YX," "
6090 IFHX=1THENPLOTXX,YX-1,"j":HX=0
6100 PLOT12,14,"hhgggggggggg"
6110 PLOT21,9,"hh":PLOT31,9,"hh":PLOT12,14,"hh"
6120 PLOT23,14,"hh":PLOT31,19,"hh":PLOT28,24,"hh"
6130 LIX=LIX-1
6140 IFLIX<1THENRETURN
6150 PLOT8,26,BTR*(LIX):PLOT8,26,5
6160 GOSUB2600
6170 GOTO4000
6990 REM ** YOU'VE DONE THE SCREEN **
7000 WAIT100:FORQ=1T03
7010 PAPERQ
7020 FORP=1T010
7030 SOUND1,(RND(1)+500)+100,10
7040 NEXTP
7050 FORP=2000T0500STEP50
7060 SOUND1,P+500,10
7070 SOUND1,P,10
7080 SOUND1,P-500,10
7090 NEXTP:SOUND1,1,0:WAIT50

```

```

7100 NEXTQ
7110 CLS:PAPER7:INK8
7120 PRINT:PRINT:PRINTSPC(3)"ANOTHER TREASURE CHEST FO
R YOU"
7130 PRINT:PRINT:PRINTSPC(5)"KONG GOT WORRIED AND LEFT
!"
7140 PRINT:PRINT:PRINT:PRINTSPC(5)"PRESS A KEY TO FOLL
OW HIM"
7150 K#=KEY#
7160 GETK#
7170 SCX=SCX+200
7180 GOSUB2500
7190 GOSUB3000
7200 GOTO4000
8000 YX=YX-2:JX=2
8010 IFSCRN(XX,YX-1)=185THENYX=YX-3:JX=0
8020 RETURN
8500 YX=YX+2:XX=XX+NVX:JX=0
8510 RETURN
9000 PLOTXX,YX-1," ":PLOTXX,YX," "
9010 YX=YX+1
9020 GOTO6000

```

Hyper-Trek

The Atmons have penetrated the empire's defences and it is your mission to wipe them out.

At the start a map will be displayed showing the positions of the enemy and your mother ship (a circled F).

After keying in co-ordinates you will be transported to that sector, and after destroying the five enemy ships press [M] (pressing [M] at any time returns you to the map).

You'll probably need to refuel during your mission. This is done by a jump to your mother ship's position. Once there, aim for the centre of the ship, using the left/right game keys.

You lose power, and points, when you're hit and the amount lost depends whether it was a direct hit or a deflection.

Your final score is based on the time your mission took with extra penalties for hits. If you reach zero power you are destroyed.

Your control keys are left arrow for left, down arrow for right and up arrow for fire.

How it works

- 30-70 the game in a series of subroutines
- 1000-1120 sets up user defined graphics
- 2000-2230 initialise variables
- 3000-3350 set up map, INPUT co-ordinates
- 4000-4080 move enemy ship
- 4090-4160 read keyboard, make adjustments
- 4170-4200 reduce power and score
- 5000-5060 you fire, check for hit
- 5500-5610 enemy is hit, reduce

- totals
- 6000-6430 enemy fires, check for hit
- 6500-6560 you're hit, reduces score and power
- 7000-7110 set up combat screen
- 8000-8420 refuel stage
- 9000-9560 subroutines to POKE title status line and PLOT stars, end game routine

Variables

- Y%/Y1% your new/old horizontal position
- PW% your remaining power
- E%/E1% new/old horizontal position of enemy
- E2% horizontal position of enemy missile
- F% counter used in enemy fire routine
- G%(N) array holding position of enemy/your mothership
- SP%(N) amount of enemy ships in each position
- N% remaining number of sectors occupied by the enemy
- SC% your score
- X,Y INPUT variables for co-ordinates
- T\$ variable holding screen title

Hints on conversion

- CLS, clears screen
- PAPER/INK sets background/foreground colours
- PLOT x,y equivalent to PRINT AT, places the string given at column x (0-38), row y (0-26).
- PLOTing a number sets a colour attribute
- SCRN (x,y) returns the ASCII value at position x,y
- PEEK (520)/KEYS reads keyboard
- WAIT n creates a pause for n hundredths of a second
- SHOOT/EXPLODE/ZAP are sound commands and can be replaced or removed

```

10 REM ** HYPER-TREK **
20 REM ** BY A.P.GARDNER
30 GOSUB1000 'UDG.S
40 GOSUB2000 'VARIABLES
50 GOSUB3000 'MAIN GAME
60 GOSUB10000 'END OF GAME
70 RUN40
100 REM
990 REM ** USER DEFINED GRAPHICS **
1000 PRINTCHR$(17);CHR$(6)

```

PROGRAMS

```

1010 FORP=46080+(97*8) TO46087+(106*8)
1020 READU:POKEP,U: NEXTP: RETURN
1030 DATA0,0,1,3,1,0,0,0
1040 DATA12,63,63,63,63,63,0,45
1050 DATA0,0,32,48,32,0,0,0
1060 DATA0,1,1,1,2,2,0,0
1070 DATA45,30,12,12,30,30,30,30
1080 DATA0,32,32,32,16,16,0,0
1090 DATA28,28,62,62,62,42,42,8
1100 DATA30,33,45,41,45,41,33,30
1110 DATA63,63,63,63,63,63,63,63
1120 DATA0,8,8,8,8,42,20,8
1990 REM ** SET UP VARIABLES **
2000 DIMB$(49): DIMSP$(49)
2010 FORQ=1 TO7
2020 CX=INT(RND(1)*49)+1
2030 IFB$(CX)=1 THEN2020
2040 G$(CX)=1: SP$(CX)=5
2050 NEXTQ
2060 CX=INT(RND(1)*49)+1
2070 IFG$(CX)=1 THEN2060
2080 G$(CX)=2
2090 PW=8000: NX=7
2100 YX=17: Y1X=17
2200 CX=INT(RND(1)*21)
2210 IFCX=0 THENEX=3: E1X=3: GOTO2230
2220 EX=34: E1X=34
2230 RETURN
2990 REM ** SPACE MAP **
3000 CLS
3010 PAPER0: INK0
3020 T$="SPACE MAP "
3030 GOSUB9000
3040 PLOT12,3,"<- - - X - - ->"
3050 PLOT13,5,"1 2 3 4 5 6 7"
3060 PLOT13,6,"-----"
3070 PLOT9,7," 11 | | | | 11"
3080 PLOT9,9," 2 | | | | 12"
3090 PLOT9,11," 3 | | | | 3"
3100 PLOT9,13," Y 4 | | | | 4"
3110 PLOT9,15," 5 | | | | 5"
3120 PLOT9,17," 6 | | | | 6"
3130 PLOT9,19," 7 | | | | 7"
3140 PLOT13,20,"-----"
3150 PLOT13,21,"1 2 3 4 5 6 7"
3160 FORQ=0 TO18 STEP2
3170 PLOT12,Q,"!-----!"
3180 NEXTQ
3190 PLOT13,24,"POWER"+STR$(PW)
3200 PLOT12,24,2: K$=KEY$: CX=1
3210 FORY=7 TO19 STEP2
3220 FORX=13 TO25 STEP2
3230 IFB$(CX)=1 THENPLOTX,Y,"g"
3240 IFG$(CX)=2 THENPLOTX,Y,"h"
3250 CX=CX+1
3260 NEXTX,Y
3270 PAPER4: INK7
3280 PRINTCHR$(30)
3290 INPUT"ENTER NEXT SECTOR IN FORM OF- X,Y": X,Y
3300 IFX<1 ORY<1 ORX>7 ORY>7 THEN3280
3310 BX=((Y-1)*7)+X
3320 IFSCRN((X*2)+11,(Y*2)+5)=104 THEN8000
3330 GOSUB2100
3340 GOSUB7000
3350 GOTO4000
3990 REM ** MAIN GAME **
4000 IFSP$(BX)<1 THEN4080
4010 MX=INT(RND(1)*2)
4020 IFMX=0 ANDEX>3 THENEX=EX-1
4030 IFMX=1 ANDEX<34 THENEX=EX+1
4040 IFRND(1)>.5 ANDFX=0 THENFX=1
4050 PLOT6,6," ": PLOT6,7," "
4060 PLOT6,6,"g"
4070 E1X=EX
4080 ONFXGOSUB6000,6100,6200,6300,6400
4090 PX=PEEK(520)
4100 IFPX=172 ANDYX>2 THENYX=YX-1: PW=PWX-1
4110 IFPX=180 ANDYX<33 THENYX=YX+1: PW=PWX-1
4120 IFPX=156 THEN5000
4130 IFPX=130 THEN3000
4140 PLOTY1X,20," ": PLOTY1X,21," "
4150 PLOTYX,20,"abc": PLOTYX,21,"def"
4160 Y1X=YX
4170 PWX=PWX-1: SCX=SCX+2
4180 PLOT18,24,STR$(PWX)+ " "
4190 IFPWX<1 THENPLOT12,14,"OUT OF POWER": WAIT400: RETURN
N
4200 GOTO4000
4990 REM ** YOU FIRE **
5000 IAP: PW=PWX-5
5010 IFSCRN(YX+1,6)=32 THEN4130
5020 SP$(SX)=SP$(SX)-1
5030 IFSP$(SX)<1 THENGX(SX)=0: NX=NX-1
5040 GOSUB5500
5050 IFNX<1 THENPLOT9,14,"MISSION COMPLETED": WAIT400: RETURN
5060 GOTO4130

```

```

5490 REM ** ENEMY IS HIT **
5510 SHOOT
5520 PLOT6,7," "
5530 FORQ=1 TO5
5540 PLOT6,6," ": WAIT10
5550 PLOT6,6," ": WAIT10
5560 NEXTQ
5570 EXPLODE
5580 PLOT6,6," "
5590 IFFX=3 THENFX=0
5600 GOSUB2200
5610 RETURN
5990 REM ** PLOT ENEMY FIRE **
6000 PLOT6,7," "
6010 FX=2: RETURN
6100 PLOT6,7,"1"
6110 FX=3: RETURN
6200 E2X=EX
6210 PLOT6,12,"1"
6220 FX=4: RETURN
6300 PLOT6,12," "
6310 PLOT6,19," "
6320 FX=5: RETURN
6400 PLOT6,19," "
6410 FX=0
6420 IFSCRN(E2X,20)<>32 THEN6500
6430 RETURN
6490 REM ** YOU RE HIT **
6500 PAPER7
6510 EXPLODE
6520 WAIT10
6530 PAPER0
6540 PWX=PWX-600: SCX=SCX+100
6550 IFE2=Y2 OR E2=Y2+2 THENPWX=PWX+400: SCX=SCX-70
6560 RETURN
6990 REM ** SET UP SCREEN **
7000 CLS
7010 PAPER0: INK0
7020 T$="COMBAT "
7030 GOSUB9000
7040 GOSUB9500
7050 PLOTYX,20,"abc": PLOTYX,21,"def"
7060 PLOT13,24,"POWER"
7070 INK3
7080 PLOT1,6,1: PLOT1,7,6
7090 PLOT1,20,7: PLOT1,21,7
7100 PLOT1,24,5
7110 RETURN
7990 REM ** REFUEL STAGE **
8000 CLS
8010 PAPER0: INK0
8020 T$="REFUEL "
8030 GOSUB9000
8040 PLOT2,1,"!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"
8050 PLOT5,2,"!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!"
8060 PLOT12,3,"!!!!!!!!!!!!!!!!!!!!!"
8070 FORQ=4 TO6
8080 PLOT8,Q,"111"
8090 NEXTQ
8100 GOSUB9500
8110 PLOT16,7,"-- --"
8120 FORQ=1 TO6
8130 PLOT1,Q,3
8140 NEXTQ
8150 PLOT1,7,1
8160 INK3
8170 CX=INT(RND(1)*2)
8180 IFCX=0 THENYX=4: Y1X=4: GOTO8200
8190 YX=30: Y1X=30
8200 PLOTYX,25,"abc": PLOTYX,26,"def"
8210 WAIT200
8220 FORQ=24 TO7 STEP-1
8230 PX=PEEK(520)
8240 IFPX=172 ANDYX>4 THENYX=YX-1
8250 IFPX=180 ANDYX<30 THENYX=YX+1
8260 PLOTY1X,Q+1," ": PLOTY1X,Q+2," "
8270 PLOTYX,Q,"abc": PLOTYX,Q+1,"def"
8280 Y1X=YX: WAIT(50-Q)
8290 SCX=SCX+2
8300 NEXTQ
8310 IFYX<>18 THEN8370
8320 SHOOT
8330 PLOT6,24,"REFUELING IS IN PROGRESS"
8340 WAIT200: PWX=PWX+8000: IFPWX>24000 THENPWX=24000
8350 PLOT6,24,"REFUELING IS COMPLETED": PLOT13,26,"PRESS [M]"
8360 P=PEEK(520): IFP=130 THEN3000
8365 GOTO8360
8370 EXPLODE
8380 SCX=SCX+100
8390 PLOT7,24,"YOU CAN'T DOCK THERE!"
8400 PLOT7,26,"PRESS [M] TO TRY AGAIN"
8410 P=PEEK(520): IFP=130 THEN8000
8420 GOTO8410
8990 REM ** TITLE ON STATUS LINE **
9000 CX=1

```

DRIC/ATMOS PROGRAMS

```

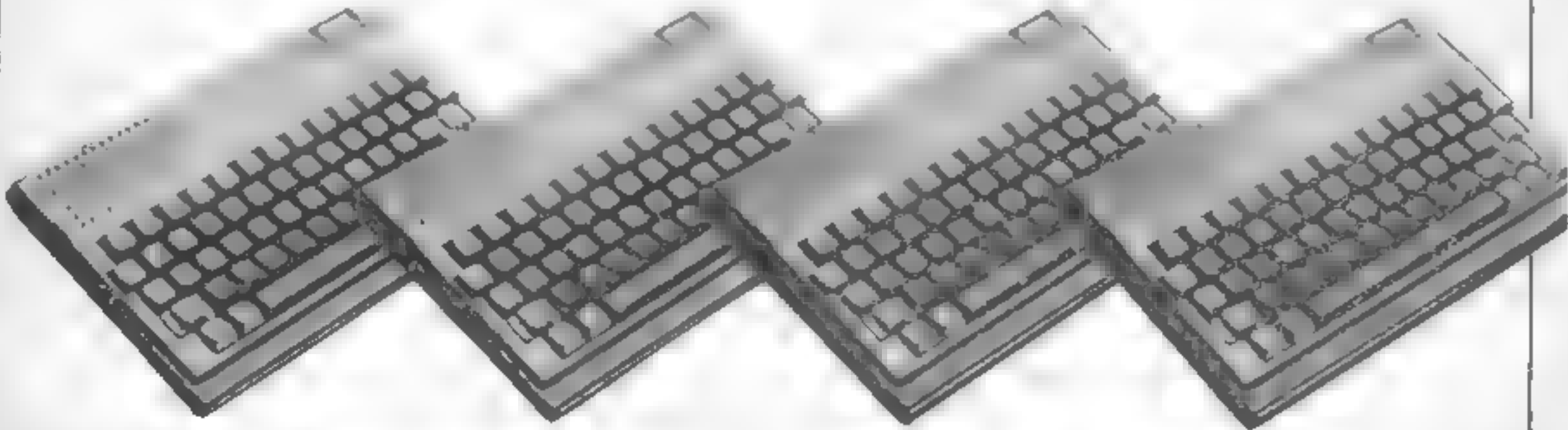
9010 FORQ=48014T00+9
9020 POKED,ABC(MID*(T,CX,1));CX=CX+1
9030 NEXTQ
9040 RETURN
9490 REM ** PLOT STARS **
9500 FORQ=1T020
9510 X=(RND(1)*37)+2
9520 Y=(RND(1)*13)+7
9530 PLOTX,Y,","
9540 NEXTQ
9550 RETURN
9990 REM ** YOU SUCCEED **
10000 IFFWX<1THEN10500
10010 CLS
10020 PAPER6:INK0
10030 PRINT:PRINT"MESSAGE ARRIVING ON VID-PRINT..."
10040 WAIT100
10050 PRINT:PRINT"CONGRATULATIONS ON COMPLETING THE"
10060 PRINT"MISSION."
10070 SCX=3500-SCX
10080 PRINT:PRINT"YOU HAVE A RANK OF ";

```

```

10090 IFFSCX>2000THENPRINT"SPACE COMMANDER";GOTO10140
10100 IFFSCX>1400THENPRINT"GROUP LEADER";GOTO10140
10110 IFFSCX>700THENPRINT"SPACE PILOT";GOTO10140
10120 IFFSCX>0THENPRINT"CADET";GOTO10140
10130 PRINT"COSMIC CLDT"
10140 PRINT:PRINT"BASED ON YOUR LAST RATING, I ";SCX;"
";
10150 GOTO10550
10490 REM ** YOU FAIL **
10500 CLS
10510 PAPER0:INK7
10520 PRINT:PRINT"MESSAGE FROM VID-PRINT..."
10530 PRINT:PRINT"WHAT A DISGRACE TO THE CORE..."
10540 PRINT"IT IS A DISMISSAL FOR YOU 'PILOT'"
10550 PRINT:PRINT:PRINT"ANOTHER GO (Y/N)";
10560 K=KEY$
10570 GETK$
10580 IFFK$="Y"THENRETURN
10590 PRINTCHR$(17);CHR$(16);PAPER7:INK0
10600 END

```



ADVENTUREMANIA



SHUTTLE ATTACK



SNOUT OF SPOUT



PANIC



QUISIMODO



ADVENTUREMANIA

TI-99/4A



Telephone your order now
TELEPHONE YOUR ORDER NOW

We have lots of exciting games. Send No. S&E now for a copy of our 2 page
LIST which will help you choose the game you want. All orders are sent FIRST CLASS
SAME DAY (Games are post free)

COMING SOON **COMING SOON** **COMING SOON**
SHUTTLE ATTACK (Ext.) The most advanced Space fight simulator ever for the TI-99-4A. The game everyone is waiting for.
PANIC (Basic) Fully animated arcade adventure. Another INTRIGUE challenge

Tel 05806 4726

INTRIGUE SOFTWARE



Cranbrook Road, Tenterden, Kent TN30 6UJ

QUICKSHOT 1 JOYSTICK
 TI 99-4A interfaced joystick
 Comes with a copy of the
 games 'Snout of Spout',
 'Spectrum' (BM version) £9.25
 Price includes 75p P & P

1984 Hi-Score

The life of a software reviewer is an enjoyable one. We receive copies of all the new programs as soon as they're released. Throughout the past I have played the majority of BBC games. Some memorable, but others I couldn't wait to file under B for bin.

It was with great pleasure that I accepted the chance to categorize 1984's BBC programs for HCW. It presented an opportunity to sift through my large box of cassettes and play some of the games which had impressed me throughout the year

Best adventures

On the adventure front the conversion of Melbourne's Spectrum spectacular *The Hobbit* was a breakthrough, despite the lack of graphics. I have always believed, regarding adventures, that a word is worth a thousand pictures.

The ability to enter commands in complete English sentences, and the interaction between characters, earns *The Hobbit* the rating of best adventure and also confirms my suspicions that *Thorn*, the singer about gold, was a wally.

Best utility program

There are many disc and cassette based utility programs available for the BBC. However, when you are in the middle of producing a masterpiece of programming, the last thing you want to do is stop and load a utility program. For this reason I decided that the winner of this category should be a ROM. But which ROM? I was forced to eliminate some of the excellent disc orientated ROMs as these are of limited use to a large proportion of Beeb users.

As an excellent example of a BASIC programmer's utility ROM I chose *Beebug's Toolkit* ROM. Other ROMs contain identical utilities, but *Toolkit* presents its information so clearly that it won on style

Best space game

Now down to the nitty gritty. Here is a game which can be relied upon to sort the men from the boys. Programmed by Orlando, who went on to write *Frak!*, we have *Aardvark's Zalaga*.

Zalaga is born of the old school of arcade games, with wave after wave of aliens pouring from the sky in galaxian fashion. Apart from the excellent graphics the appeal lies in the fact that until you've played the game for several days you won't get past the fourth screen. These bad guys are mean!

In the first of a series, one of our regular BBC reviewers gives the thumbs up and thumbs down to the most memorable Beeb games of 1984

Best graphics

Zaxxon, as most arcaders know, is one of the most complex, diagonal scrolling, 3D, shoot-em-up games of all time. I was so overcome with excitement when I first saw *Pace's Fortress* on the Beeb that I went out and bought a copy. This is almost unheard of among software reviewers.

The only thing *Fortress* lacks is the abundant colour of the original, but this was a small price to pay for such a game.

Cutest program

Frak! was a difficult game to place. I would have liked to give it the best graphics award, but felt that by placing it in the Cute class I could give someone else a chance

Cute seemed a much more apt category for *Frak!* as it summed up the whole appeal of the game. Here was an opportunity to hang up your laser cannon and wander around the wilderness knocking off monsters with your yoyo.

Worst program

Micropower is currently one of the leading producers of top quality games for the BBC. Earlier in the year things weren't so rosy. One memorable program was a game called *Positron*. To call it bad was a compliment. The game was a retrograde step from *Space Invaders*. A cloud of low resolution shapes moved from side to side, you shot them down and they were replaced by another cloud of monotonous monstrosities. Reviewing can be purgatory at times!

Worst Taste

One recent release is a prime candidate for this category. *The Evil Dead* from *Palace Software*

is one of the first computer nasties to hit the small screen. Hack at the mutants with any available weapon, but watch out because the disembodied head and limbs are out for revenge! A second rate game, sold with first class advertising.

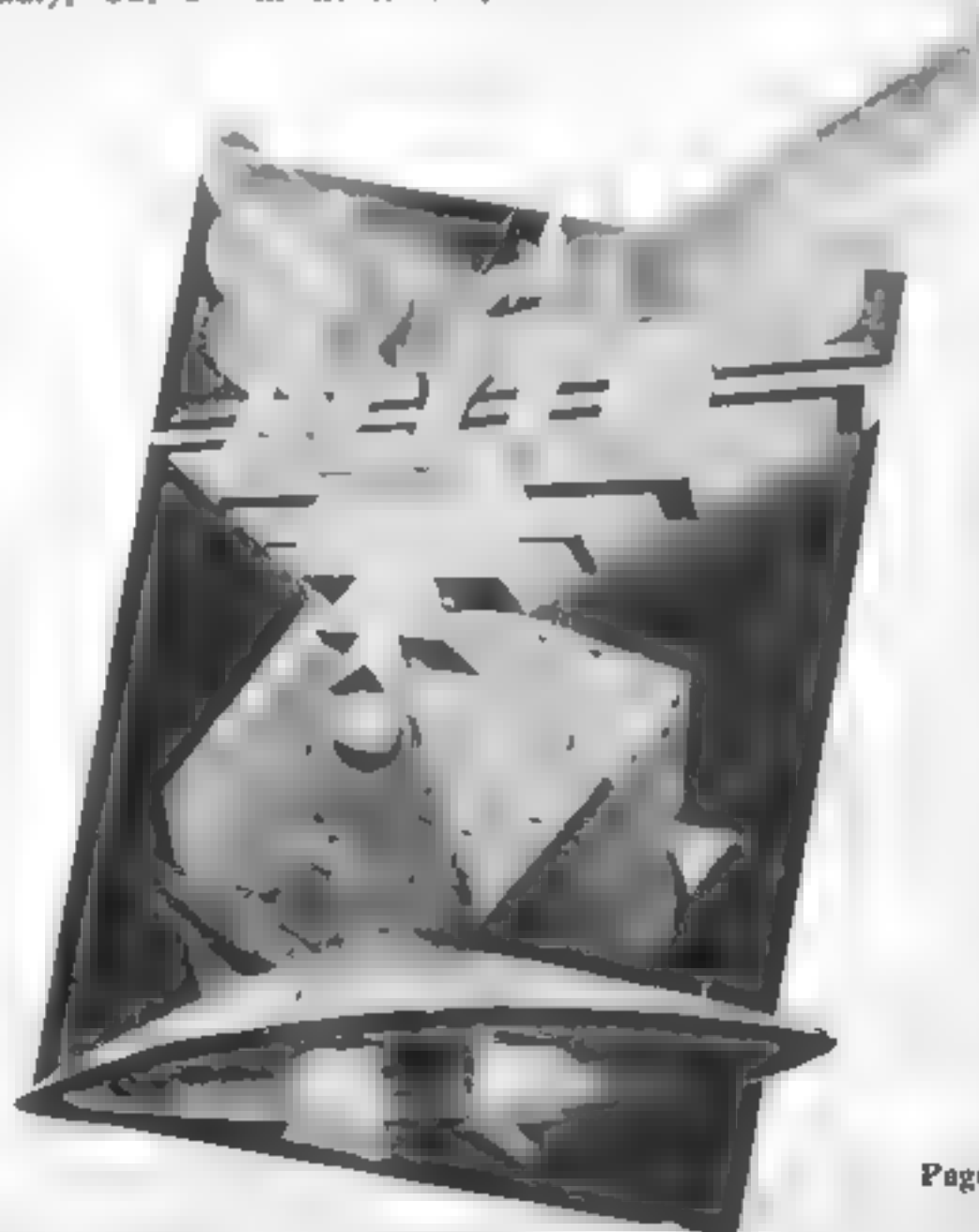
Cult game of the year

What more can I say. It's got to be *Elite*. Take one look at any of the computer bulletin boards, they're crammed with *Elite* hints, tips, and boasts.

My personal award

As with many other categories, this too could have been won by *Elite*. However, I decided to give my personal award to a more lowly program. *Pool* from *Dynabyte*. I've played numerous pool and snooker programs on the Beeb. Most have had complete sets of balls and wonderful colours, but as games they have failed. *Dynabyte's Pool* is different. The graphics are simple, but the mechanics of the game are a delight. I have spent many a happy evening with friends getting thrashed at *Pool*.

I always feel that the new year cannot hold any more surprises for the Beeb. Each year I have been wrong. Here's to another 12 months of innovation in 1985



Alien C64 + Joystick £8.95

Mind Games, 222 Regent St,
London W1R 7DB

This is the game of the film. You take command of the crew of the Nostromo as they try to rid the ship of the alien. It is extremely close to the film and can be just as spine-chilling.

The cassette was quick and easy to load and the program was presented with suitably sombre music. You choose between the full adventure or a shortened version.

The object of the game is to rid the ship of the alien and get back to earth with as many of your crew as possible. You have a map of the ship and various monitors to assist you. These will show where you are and the state of

play of the crew.

At first I was disappointed as alien is neither wholly adventure nor arcade, but after playing several times I can say that this game grows on you. The sound effects add to the suspense as does the sudden arrival of the monster.

instructions	85%
graphics	80%
playability	80%
value for money	100%



Roland Ahoy Amstrad CPC464 £8.95

Amsoft, 169 Kings Rd, Brentwood, Essex CM14 4EF

If you write a game with a character in it and sell it to Amsoft, he will immediately become Roland. In this game our hero is a pirate sailing the savage seas in search of treasure.

This is a manipulation game which involves quick thinking and responsive fingers. I found the keyboard control keys were set out awkwardly and that the joystick was not as easy to use as the keys. This left me in a quandry, but as both are active at all times you can change at will.

There are four screens; the first is the map around which

you must steer to get ammunition. Loading is difficult as a cannon is fired at you as soon as you step off the ship.

When you get the shot you blast your way through the harbour boom to the treasure, avoiding yet more cannon. Finally you stash the treasure on the island, avoiding spiders and boulders.

In all, an interesting if rather static game which could do with a little more speed and interest.

instructions	80%
graphics	90%
playability	80%
value for money	75%



Impossible Mission CBM 64 £8.95

CBS, Ashbrook Hse, 3-5 Rathbone Pl, London W1

This is one of the most addictive games I have seen in recent months.

Your mission as Agent 4125 is to save the world from Eivin, the mad scientist, who has threatened the world with nuclear annihilation. You must find the security code (hidden in the furniture) and reach the control centre whilst avoiding the robots which guard the underground laboratory.

An added aggravation is that the security code is in the form of torn-up computer punch cards. They have to be fitted together to give part of the password you require. You do have a pocket computer to help you.

The graphics in this game are very good, the agent's movements being reminiscent of the gymnasts in Summer Games. Every game is different, the subterranean layout changes, as does the behaviour of the robots. And for that added bonus there is a menacing voice urging the robots on. As yet I haven't finished this arcade-cum-adventure game. Maybe it is an Impossible Mission — or maybe I need to play again?

instructions	90%
graphics	95%
ease of use	90%
value for money	90%



Weird and wonderful

There's a real mixture of games, if you like variety. Alien intruders or action in the air

Juice CBM 64 £7.95

System 3, South Bank Hse, Black Prince Rd, London SE11

Juice isn't exactly based on a new idea, being one of the Q*bert-type jumping-on-squares-to-change-their-colour games. However, this has been reworked sufficiently to make it interestingly different. The blocks have been replaced by flat chessboard-like playing areas (sometimes with holes in), and the characters altered.

Juice has an electrical theme. Your character has to complete a circuit from one corner to the other by jumping on each square. Baddies have to be avoided; Killerwatt pursues you until you lure him to his death. Flash will undo your work as he

jumps about, and jumping on Recharge freezes the baddies for a while.

Every now and again, the successful player reaches a bonus screen with no baddies. Here you have to complete the circuit between the opposite corners within a time limit, rather than changing every square.

I occasionally had trouble keeping my character under control, but overall this is a nice variation on the theme and I enjoyed it.

instructions	65%
graphics	85%
playability	90%
value for money	90%



Suicide Strike CBM 64 £7.95

System 3, South Bank Hse, Black Prince Rd, London SE11

So you want to be a jet pilot? In Suicide Strike you can be six. As Squadron Leader you command planes flying through wave after wave of enemy forces on a one-way bombing mission deep into the heart of foreign territory.

The screen display is rather odd: the screen border shows the interior of a cockpit and the view through the windshield, yet this view consists of the actions of the plane you are currently flying. Interesting space-time topology, to say the least. The action is 3D. Your plane and the enemy forces cast a shadow on the ground and part of the strategy is knowing how high to fly for a particular wave: ground-hugging to take out the tanks, higher to shoot down the helicopters.

You're flying with a limited fuel supply and against the clock, so you have to trade off airspeed against fuel consumption. Your plane banks as you veer left and right, so with practice you can aim your rockets diagonally across the screen to attack the enemy.

Suicide Strike is a nice implementation and features Nova-oad, so you can get it into your machine quickly.

instructions	65%
graphics	85%
playability	80%
value for money	80%



In the second of our regular series on Amstrad programming, David Ellis shows you how to set up the RSX and get it working

Insight on the Amstrad CPC464

Last week's article explained what an RSX is and how one can be set up. This week we will set up our own RSX and get it operational.

The RSX will start at &7CFC (31996), giving us around 10K of memory to use depending upon whether the SYMBOL AFTER command is used. This downloads the character set from ROM into RAM — the lowest memory position used (SYMBOL AFTER 0) will be &A400 (41984), giving us just under 10K. The four bytes needed by the Kernal for workspace will be at &7CFC (31996) to &7CFF (31999). The machine code routine given in Table 1 will reside at &7D00 (32000) to &7D09 (32009). The

the start address of the Word Table to locations &7E8A/&7E8B (32394/32395). As new words are added these locations will be continually updated so that the BASIC program in listing 2 knows where to store the word names.

The machine code routines for the words will begin at &828C (33420) and line 1050 POKES this address to &828A/&828B (33418/33419) which will also be updated by the BASIC program so that the machine code routines are placed in the correct position.

Finally, line 1060 POKES addresses &7E88/&7E89 (32392/32393) with the place in the RSX Command Table where the first JMP will take place. These locations will also be

Figure 1. Memory Layout for RSX

&7CFC - &7CFF	four-byte workspace for use by Kernal
&7D00 - &7D09	machine code routine to initialise RSX
RSX Command Table	
&7D0A &8C	Address of Word Table (&7E8C)
&7D0B &7E	
&7D0C	JMP NEW WORD 1 ROUTINE
&7D0F	JMP NEW WORD 2 ROUTINE
&7D12	JMP NEW WORD 3 ROUTINE
&7E88	holds address for next
&7E89	JMP in RSX Command Table
&7E8A	holds address where next
&7E8B	WORD name is placed
Word Table	
&7E8C	NEW WORD 1
?	NEW WORD 2
?	NEW WORD 3
?	LAST WORD
?	0
&828A	end of table marker
&828B	holds address where next
	machine code routine starts
Machine code routines	
&828C	ROUTINE FOR NEW WORD 1
?	ROUTINE FOR NEW WORD 2
?	ROUTINE FOR NEW WORD 3
&A3FF	LAST USABLE LOCATION (depending on SYMBOL AFTER)

Table 1. Machine code routine for setting up RSX

Address	Mnemonic	Op Codes	HEX	Comment
&7D00	LD BC &7D0A	01 0A 7D		; start address of RSX table
&7D03	LD HL &7CFC	21 FC 7C		four-byte buffer for Kernal
&7D06	CALL &BCD1	CD D1 BC		; call KL LOG EXT — introduces the RSX to the firmware
&7D09	RET	C9		; return from subroutine

RSX command table will then begin at the next byte — &7D0A (32010)

updated when new words are added
Figure 1 shows the complete

```

1000 MEMORY 57CFA
1010 FOR s=57D00 TO 57D09:READ a:POKE s,a:NEXT
1020 DATA 1,8A,7D,21,FC,7C,CD,D1,BC,C9
1030 POKE 57D0A,8C:POKE 57D0B,7E Put address of word table to RSX table
1040 POKE 57E8A,8C:POKE 57E8B,7E Position of next free word address
1050 POKE 828A,8C:POKE 828B,7E Position of next machine code routine
1060 POKE 7E88,7D:POKE 7E89,7C Position in RSX command table
    
```

Listing 1 is the BASIC program which will initially set up the RSX. Line 1000 sets the 'Top of BASIC' pointer to &7CFA (31994). Lines 1010 and 1020 POKES the machine code routine (Table 1) to &7D00 -&7D09. The address of the Word Table will start at &7E8C (32396), and this address is POKED into the first two bytes of the RSX command table (line 1030).

As is usual practice with Z80 machine code, the Least Significant Byte (LSB) of the address will come first, followed by the Most Significant Address (MSB) Byte. Line 1040 POKES

memory layout for the RSX which may help to clarify things.

Type out listing 1 and RUN it. Make a copy of it on tape, but if all goes well this program should not be required again. When you have done this, NEW the program and type in the BASIC program in listing 1. This is a 'no frills' type of program which is split into two parts.

The first part POKES the ASCII values of any new word you enter to the Word Table. The word can be entered in upper or lower case as it will be converted to upper case by the

program. The word length should be less than 17 characters. No checks are performed for illegal characters, so be careful! This part of the program also places the JMP instruction and the address of the machine code routine for the word to the RSX Command Table. Various pointers are also updated.

The second part of the program will tell you where the machine code routine will reside in memory, and then POKES the numbers you enter to this address onwards. All the

numbers should be entered in HEX, but it is not necessary to use the '&' symbol. Entering 'Q' will end the program. Entering 'W' will let you repeat the process and enter the next word etc.

Depending upon your typing skills it is a good idea to take regular copies of the RSX by entering 'S'. This will save the whole of the RSX, complete with pointers, as a binary file with the name 'NEW WORDS' (or whatever name you use). The length of the file is calculated by subtracting

AMSTRAD PROGRAMMING SERIES

&7D00 from the address of the last machine code number. If you have any disasters (quite common when working in machine code!) then all that is needed is to load in the BASIC program, and then load in the binary file 'NEW WORDS'. You can then continue from where you left off as all the pointers are contained on the file, complete with the RSX Command Table, Word Table, and the Machine Code Routines for the words. If you are a really bad typist, it may pay you to modify the program so that you can check what you have entered and correct any mistakes.

Now if you RUN this BASIC program we will enter the first new word. Enter the word PARAMETER when prompted and then the following list of machine code numbers one at a time

```
DD 7E 6 DD 46 5
DD 4E 4 DD 56 3
DD 5E 2 DD 66 1
DD 6E 0 C9
```

Remember to press the Return key after entering each of the numbers. When you have

entered all the numbers enter 'Q' to end the program. Now enter (bar sign by pressing the @ key) PARAMETER and press the Return key. 'Unknown command' should appear. Why? Well, the RSX has not yet been 'introduced' to the firmware. The short machine code program residing at &7D00 needs to be run first by entering

CALL &7D00

Now the RSX should be initialised, and if you enter (bar sign) PARAMETER this time you should return to BASIC without any 'Unknown command' message. If so then the firmware has found the word PARAMETER and run the machine code routine for it. Perhaps it does not appear to have done anything, but as we shall see next week it is actually a very useful word — but alas not from BASIC.

If you have suffered any crashes or unexpected results then I suggest that you check all your listings very carefully. The margin for error when working in machine code is nil. You have been warned!

```
2000 *****Put new word name to word table*****
2010 DIM num(300):IMILE TIME#
2020 LINE INPUT "Enter new word name ";word$
2030 word$=UPPER$ word$:address=PEEK(&7E00)+256+PEEK(&7E01):count=1
2040 FOR address TO address+LEN(word$)-1
2050 POKE address,ASC MID$(word$,count,1):count=count+1
2060 NEXT address:POKE address,ASC MID$(word$,count,1)+500:word$=""
2070 POKE &7E00,INT (word$/256):POKE &7E01,INT (word%/256)
2080 ASK=PEEK &7E00+256+PEEK &7E01
2090 POKE ASK,193:POKE ASK+1,PEEK(AMP200)+POKE ASK+2,PEEK(AMP200)
2100 GET=RSX+3:POKE &7E00,INT(RSX/256):POKE &7E01,RSX-INT(RSX/256)+254
2110 *****Enter machine code program*****
2120 put=PEEK &8200+256+PEEK &8201:count=1:flag#0
2130 PRINT "Putting to (HEX) put"
2140 INPUT "Enter HEX number (0-Quit M=Next word. S=Save to tape) ";coded
2150 IF coded="0" OR coded="q" THEN END
2160 IF coded="M" OR coded="s" THEN flag#1:GOTO 2090
2170 IF coded="S" OR coded="s" THEN flag#0:GOTO 2090
2180 num(count)=VAL("&"+coded):IF num(count)<0 OR num(count)>255 THEN 2030
2190 POKE put,num(count):count=count+1:put=put+2:GOTO 2140
2200 IF flag#1 THEN 2090:GOTO 2090 ELSE GOTO 2140
2210 END
2220 *****Save RSX as BINARY FILE to tape*****
2230 LINE INPUT "Enter name of file to save ";name$
2240 SAVE name$,B,&7D00,put-&7D00:RETURN
```



SPECTRUM

GAME	RRP	OUR PRICE
DALEY THOMPSON	6 90	4 99
BEACHHEAD	7 95	5 95
WHITE LIGHTNING	14 95	10 50
SHERLOCK HOLMES	14 95	9 99
KNIGHTS LORE	9 95	8 95
UNDERWORLD	9 95	8 95
LORDS OF MIDNIGHT	9 95	5 95
DOOMDARKS REVENGE	9 95	5 95
PSYTRON	7 95	5 95
FRANK N STEIN	5 95	4 50
TLL	5 95	4 50
TRASHMAN	5 95	4 50
CLASSIC ADVENTURE	6 95	5 25
MONTY MOLE	6 95	5 50
FULL THROTTLE	6 95	5 75
MATCHPOINT	7 95	6 75
AVALON	7 95	5 25
ENDURO	7 95	5 50
SCRABBLE	15 95	4 75
EDDIE KIDD JUMP	7 95	4 95
COMBAT LYNX	7 95	5 25
DARK STAR	7 95	4 95
JET SET WILLY	5 95	4 50
STAR STRIKE	5 95	4 50
TRAVEL WITH TRASHMAN	5 95	4 50
BACKPACKERS GUIDE TO QUASIMODOS REV	7 50	4 95
QUASIMODOS REV	6 90	4 90
TIR NA NOG	9 95	6 95
AIRWOLF	6 90	5 25
MATCH DAY	7 95	5 70
PYJAMARAMA	6 95	5 25
BLUE MAX	7 95	5 99
MACH NE LIGHTNING	19 95	14 95
MONTY IS INNOCENT	6 95	5 50
TECHNICIAN TED	6 95	5 50
ZAXXON	7 95	5 95
*VU CALC	9 95	4 00
*VU FILE	9 95	4 00
*JACK AND BEANSTALK	5 95	2 75
GREAT SPACE RACE	14 95	11 25
POTTY PIGEON	6 95	5 25
PITFALL II	7 95	5 95
VALKYRIE 17	9 95	5 95
RAM TURBO INTERFACE		18 00
MATCH POINT	7 95	6 50
GIFT OF THE GODS	9 95	7 95

GOODBYE

TRIPPODS	11 50	7 50
BOULDER DASH	7 95	5 95
SPIDERMAN	9 95	6 99
GHOSTBUSTERS	9 95	7 50
SOFTWARE STAR	8 95	5 25

COMMODORE 64

GAME	RRP	OUR PRICE
GHOSTBUSTERS	10 95	8 50
SUICIDE EXPRESS	7 95	6 50
OTHER ACTIVISION	9 95	7 25
ZIM SALA B M	9 95	6 95
STRIP POKER	9 95	6 95
PSYTRON 64	7 95	5 25
TALES OF ARABIAN NIGHTS	7 00	3 75
BEACHHEAD	9 95	7 50
SOLO FLIGHT	14 95	11 00
DEATH STAR INTERCEPTOR	9 95	7 50
BRUCE LEE	9 95	7 50
NATO COMMANDER	9 95	7 50
SPITFIRE ACE	9 95	7 50
MY CHESS II	11 95	8 25
BATTLE FOR MIDWAY	8 95	4 85
QUASIMODOS REVENGE	7 90	5 90
ZAXXON	9 95	7 50
SUMMER GAMES	14 95	10 50
SHERLOCK	14 95	10 50
PSI WARRIOR	9 95	5 99
RAID OVER MOSCOW	9 95	7 50
STAFF OF KARNATH	9 95	7 25
BLUE MAX	9 95	7 50
TAPPER	9 95	7 50
SELECT 1	12 49	8 50
SPY VS SPY	9 95	7 50
BOULDER DASH	8 95	7 25
HOBBIT	14 95	9 99
DALEY THOMPSONS DECATH	7 90	5 25
KONG S REVENGE	7 90	5 90
FIGHTER PILOT	9 95	7 50
BREAKFEVER	7 00	4 95
COMBAT LYNX	8 95	6 95
WHITE LIGHTNING	19 95	15 95

SPIDERMAN	9 95	6 99
CAD CAM WARRIOR	9 95	7 50
F15 STRIKE EAGLE	14 95	11 70
MOTOCROSS	7 95	5 80
SUIC DE STRIKE	7 95	5 80
SPY HUNTER	9 95	7 50
IMPOSSIBLE MISSION	8 95	6 75
CASTLE OF TERROR	9 95	7 50
EMPIRE OF KHAN	7 00	4 95
SHOOT THE RAPIDS	7 95	6 50
LORDS OF MIDNIGHT	9 95	6 99
CONGO - BONGO	9 95	7 50
BATTLE FOR NORMANDY	14 95	11 70
COMBAT LEADER	14 95	11 70
WORLD SERIES BASEBALL	7 90	5 90
ALICE IN VIDEOLAND	9 95	7 95

COMMODORE 16

GAME	RRP	OUR PRICE
SLIPPERY SID	6 95	4 95
GAMES PACK 1	6 95	4 95
GAMES PACK 2	6 95	4 95
OLYMPIAD	6 95	4 95
SKRABLE	6 95	4 95
FLIGHTPATH 737	6 95	4 95
ZODIAC	6 95	4 95
MOON BUGGY	6 95	4 95
OUT ON A LIMB	6 95	4 95
TOM THUMB	6 95	4 95
GALAXIAN	6 95	4 95
MUNKEY MAGIC	6 95	4 95
JUNGLE QUEST	6 95	4 95
RIG ATTACK	6 95	4 95
TYNSOFT 4 PACK	14 95	10 50
SPIDERMAN	7 95	6 95
HULK	7 95	6 95

ALL PRICES INCLUDE P&P

PLEASE NOTE IF YOUR ORDER EXCEEDS £50 YOU GET 10% FURTHER DISCOUNT

SEND CHEQUES P O TO

GOODBYE (HCW)

94 LEATHER LANE, LONDON EC1 (TEL. 01 404 4245)

ALL PRICES INCLUDE P&P

Overseas orders welcome. Please add £1.50 per order

Astro Attack Amstrad CPC464 £8.95

Amsoft, 169 Kings Rd,
Brentwood, Essex CM14 4EF

Maze chase games seem to be out of fashion so it was a surprise to find this. It is a space-based maze game with you controlling a spaceship which has been transported to another time.

The rulers of the land are less than friendly, playing games with their captives. You must fight for your life in the 'game grid' and the harder you fight the harder become the attacks.

I find the story is much more engaging than the game itself. The more I played, the less interesting it became. The graphics are good and there are a number of engaging features such as the spinning satellites,

but overall too much chase and not enough interest.

The joystick isn't very positive either, which makes life rather shorter than it might otherwise have been. The keyboard controls are more positive, but they could have been sited in better positions. Overall, a game for the light of finger who like to complete sheet after sheet with little variation. **D.C.**

instructions	75%
graphics	60%
playability	85%
value for money	60%



Tachyon command 48K Spectrum £6.95

Century, Portland Hse, 12-13
Greek St, London W1V 5LE

It seems that you are in the year 2534, in command of a squadron of six ships equipped with the Tachyon warp drive. That is more or less a direct quote from the inlay card.

Although the warp drive was discovered two centuries ago, it looks as though someone has forgotten how to use it. The six 'ships' that I had on the screen didn't go anywhere, they only turned, in unison, to the left or to the right. Alright, they turned smoothly and quickly, but what has this to do with warp drives?

In other games, when I have used this facility, at least you get

a simulation of a very fast movement to another place in the galaxy. That is the sort of thing that we have been led to believe represents this fictional warp drive.

The claim on the inlay card is that this game was written by 'one of Britain's most acclaimed software writers'. Acclaimed by whom? **B.B.**

instructions	80%
graphics	80%
playability	70%
value for money	65%



Backpackers' Guide to the Universe Part 1 48K Spectrum £7.50

Fantasy, Fauconberg Lodge,
27A St Georges Rd, Cheltenham,
Glos GL50 3DT

This tape is a rather odd mixture. Side one contains a guide to some of the more exotic fauna of the universe — a dozen assorted creatures with strange names and stranger habits — which is nicely presented with good graphics and scrolling text. Once you have studied this and absorbed the major facts about each creature, you can go on to the game on side two.

Here you control Ziggy the intrepid backpacker as he explores the caverns of exile on the planet Thalix, collecting the creatures he will need to help in his mission to prevent the evil Scarthax from pulling the Great Plug on the universe.

Many of the passages contain objects which Ziggy can collect and use to assist him. Making good use of these requires considerable experimentation. The caverns are infested by ring wraths, which sap Ziggy's strength unless they are deflected by his flame-thrower. There's a time-limit within which this part of the mission must be completed.

Just flying Ziggy through the caves is quite fun, but playing the game seriously will require a lot of time and dedication. **M.N.**

instructions	60%
graphics	90%
playability	80%
value for money	90%



Starlight exclusive

Here's a whole selection of
space games including the
first review of Romik's new
release Captain Starlight

Captain Starlight CBM 64 £6.99

Romik, 272 Argyll Ave, Slough
SL1 4HE

This is one for those with a delicate touch, fast finger on the fire button, perfect judgement and nerves of steel. Lesser mortals can play too.

As Captain Starlight, complete with jet pack, you shoot your way through the maze of the enemy's underground fortress and find and destroy its commander. Apart from keeping clear of the cavern walls, there are space mines drifting around, and contact with either loses one of your 10 lives.

The mines float from left to right and back, but each time you enter a cavern their positions vary, so it's no good trying to find a set route. Even having

shot up the mines, you still have to set the code on the control pad to de-activate the force field before you can move on to the next cavern.

In concept it is a cross between Crazy Balloon and Scramble, with a touch of originality. One niggle, there are 20 entries on the high score chart, but only the score, not the scorer's name is shown. Overall — a good game but not special enough to make the top ten. **B.J.**

instructions	90%
graphics	85%
playability	85%
value for money	88%



Warlords 48K Spectrum £6.95

Century, Portland Hse, 12-13
Greek St, London W1V 5LE

The inlay card states that the action in this game takes place on the planet Jupiter. If that is the case there are a lot of planets out here which look remarkably like Jupiter, or vice versa.

Your most unlikely mode of transport is a hybrid ostrich which is also supposed to be a fighting machine because of its claws. I found the claws superfluous because the aliens were easily subdued when the ostrich sat on them. Because the keyboard is divided in half, two players can compete, and the controls are simple, just left, right and fly.

Unfortunately the response is not too positive when you want to go left or right. Sometime after the keypress the thing decides to move, and continues to move after your finger comes off the key. This could become disconcerting, should you hang around long enough to play the game. According to the inlay card I should find the game 'exciting to play, taxing my powers to the limit'. The only thing to be taxed was my patience. This same theme was tried many moons ago, and it wasn't very successful then. **B.B.**

instructions	100%
graphics	95%
playability	65%
value for money	75%



They're coming to get you!

Type in program 1, save it and then run before entering program 2.

The program moves screen memory to 7680 from 4096, colour memory to 38400 from 37888 and effectively gives you an unexpanded VIC-20 with 16K RAM!

It allows the use of UDGs on a 16K VIC.

How it works

1-9 GOSUB to title screen, instructions, speed of alien
DIM arrays, set up joystick variables
11-14 set up UDGs
15-90 set up variables, screen
100-199 execution module
750-7700 check all treasures present at start
800-849 sound effects
850-899 print status
900-920 place treasures on screen
950-999 update lives and status
1000-1099 move alien
2000-2299 move man up
2300-2499 move man down
2500-2799 move man right
2800-2999 move man left
3000-3299 update score
5000-5099 screen 1 data and associated variables
5100-5199 screen 2 data etc
5200-5299 screen 3 etc
5300-5399 switch to new screen
5500-5520 print titles at top of screen
6000-6099 print bad luck message if game lost
6500-6599 print congratulatory message if game won
9000-9199 title screen
9500-9540 choice sheet
10010-19999 data
20000-20048 instructions

Listing 1

```
10 POKE43,1:POKE44,32:POKE6192,0
20 POKE641,0:POKE642,32
30 POKE648,30:POKE36886,150
40 POKE36889,240
50 PRINT"PLEASE WAIT...":
60 POKE631,76:POKE632,111:POKE633,13
70 POKE198,7:NEW
```

Variables

CO colour of
FN A (1) random number between 1 and 1
S1 voice 3
S2 voice 2
SS status
LE current level
L lives
T () position of treasures (updated in each level)
D () direction of alien — up, down, left, right, still
AS () speed of alien
M position of man

Control characters

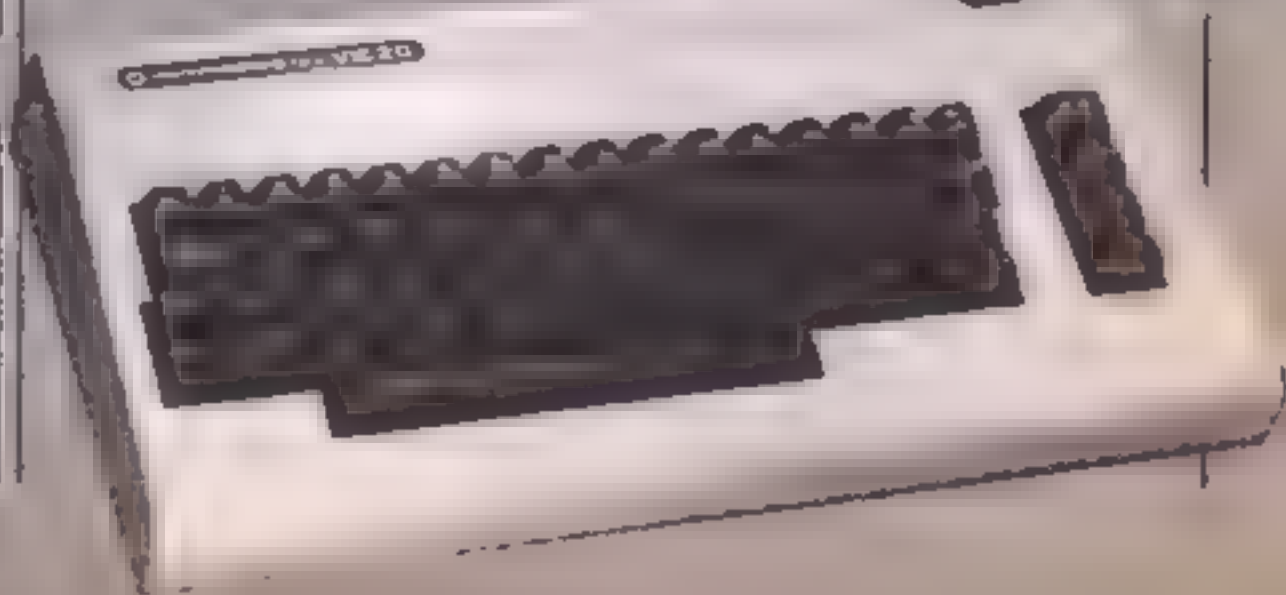
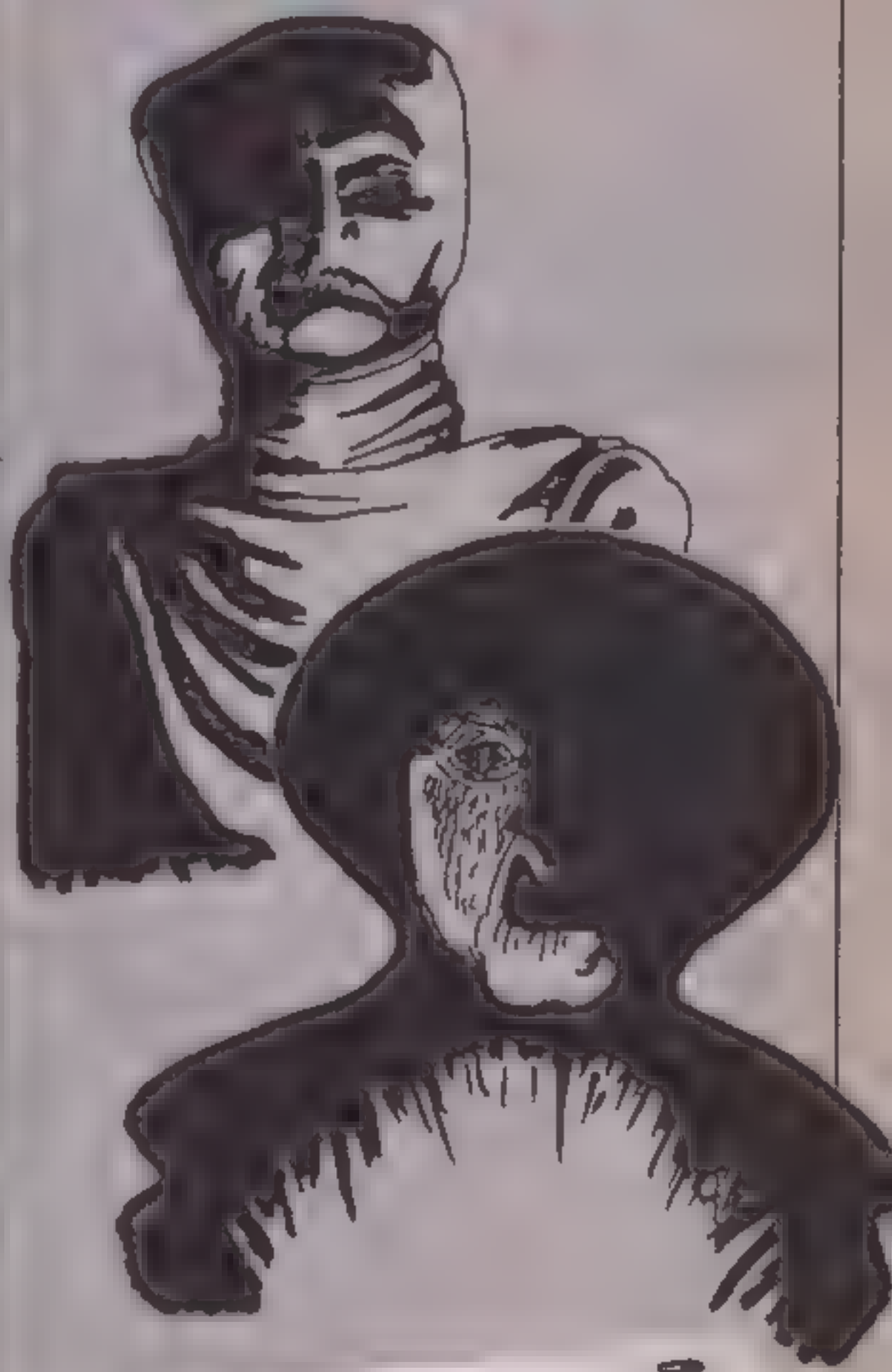
All in reverse video (except those used in GET AS loops which represent keys)
Heart clear screen
'S' cursor home
P! print in yellow
Vertical line cursor left
'Q' cursor down
' ' print in green
Half chequer board print in purple
'E' print in white
'R' turn reverse video on
' ' print in blue
low horizontal line reverse off
'£' print in red
right square bracket cursor right

Major POKEs

36876 voice 3
36875 voice 2
36877 voice 4
36879 volume
36879 sets screen colour, (8 black, 93 = green, 25 = all white)
7680-8185 screen local on

Symbol in GETAS loops

20016 F1 key
20027 F3 key
20036 F1 key
20046 F1 key
20047 F3 key



PROGRAM

Listing 2

```

1 GOSUB9000:GOSUB9100
2 GOSUB9500
3 DIMT(5),D(5),AS(4)
9 POKE37151,0:PA=37151:PB=37152:RB=37154
11 FORJ=0TO511:XX=PEEK(2768+J):POKE7168+J,XX:NEXT
12 FORI=0TO511:READY:IFX=0THENI4
13 POKE7168+J,XX:NEXT
14 POKE36369,255:L=3:LE=1
15 PRINT"J":POKE36879,8:POKE36878,15:POKE657,128:POKE650,128
16 CO=36720:DEFN(A(I))=INT(1+I*PI*0.01):S1=36876:S2=36875:S3=25*LE
22 ONLEGOSUB5000,5100,5200
24 GOSUB5500
25 D(1)=2:D(2)=-2:D(3)=1:D(4)=1:D(5)=0:AS(1)*20:AS(2)=150:AS(3)*400:AS(4)=800
26 GOSUB750
30 POKE1,20:POKEM-22,21:POKEM+CO,1:POKEM-22+CO,1
40 GOSUB750
130 GOSUB1000
135 A=PEEK(PA):POKERB,127:B=PEEK(PB):POKERB,255
110 GETA$
111 IF(AND4)=0ORAS="P"THENGOSUB2000
112 IF(AND8)=0ORAS="L"THENGOSUB2300
113 IF(AND128)=0ORAS="D"THENGOSUB2500
114 IF(AND16)=0ORAS="A"THENGOSUB2800
115 IFLE=1ANDCS=50THENGOSUB5000
116 IFLE=2ANDCS=75THENGOSUB5000
130 T=100
150 FORQ=1TO10:FORVV=1TO5:IFPEEK(T(VV))=32THENGOSUB900
160 NEXTVV:NEXTQ
170 RETURN
200 FORV=15TO0STEP-1
201 POKE16,V
202 POKE256+V,123+V*P
203 POKE36876,V
204 NEXTV
205 POKE6270,0:POKE36878,15
340 RETURN
550 FORZ=1TO5:STEPS:PRINT"Z"TAB(15):Z:FORT=1TO10:POKE51,200:NEXTT:POKE51,0:NEXT
1RETURN
900 GP=FNA(5):CH=FNA(3):CC=FNA(7):IFCC=5THENCE=7
910 POKE(GP),15+CH:POKE(GP+CO,CO):POKE(GP-1,INT(128*PI*0.01)+127:IFURT=1TO10:NEXT:POKE51,0
920 RETURN
950 IFSS>100THENS=100
960 PRINT"SS"TAB(10):L/SPC(3):SS"%"
970 RETURN=100:POKE500
990 RETURN
1000 M=M+1+4*RI*0.01:IFPEEK(M+D(CO))=32THENRETURN
1010 POKE(M-21,4+D(CO)):POKE(M-19,POKEM+CO,7:FORZ=1TOAS(ZA):NEXT:POKEM,32
1015 FORZ=1TO4
1020 IFPEEK(M+D(ZE))>19ANDPEEK(M+D(ZE))<28THENGOTO3000
1021 NEXTZ
1099 RETURN
2000 IFPEEK(M-44)=19THENGOTO3000
2010 IFPEEK(M-44)>19ANDPEEK(M-44)<32THENRETURN
2020 M=M-22:POKEM+22,32
2030 POKEM,20:POKEM-22,21:POKEM+CO,1:POKEM-22+CO,1
2299 RETURN
2300 IFPEEK(M+22)=19THENGOTO3000
2305 IFPEEK(M+22)>19ANDPEEK(M+22)<19THEND=-22:GOSUB3200
2310 IFPEEK(M+22)>19ANDPEEK(M+22)<32THENRETURN
2320 M=M+22:POKEM-44,32
2330 POKEM,22:POKEM-22,23:POKEM+CO,1:POKEM-22+CO,1
2499 RETURN

```

```

2500 IFPEEK(M+1)=190PPEEK(M-2)=19THEYGOTO3000
2505 IFPEEK(M+1)>15ANDPEEK(M-1)<11THEYD=1GOSUB3200
2510 IFPEEK(M+1)>15ANDPEEK(M-1)<11ANDPEEK(M-2)=19ANDPEEK(M-2)>32THEYRETURN
2515 M=M+1:POKEM,23:POKEM-23,32
2520 POKEM,24:POKEM-22,25:POKEM+CO,1:POKEM-22+CO,1
2525 RETURN
2530 IFPEEK(M+1)=190PPEEK(M-2)=19THEYGOTO3000
2535 IFPEEK(M+1)>15ANDPEEK(M-1)<11THEYD=1GOSUB3200
2540 IFPEEK(M+1)>15ANDPEEK(M-1)<11ANDPEEK(M-2)=19ANDPEEK(M-2)>32THEYRETURN
2545 M=M+1:POKEM+1,24:POKEM-21,32
2550 POKEM,26:POKEM-22,27:POKEM+CO,1:POKEM-22+CO,1
2555 RETURN
2560 POKEM,30:POKEM-22,30:GOSUB3100
2565 POKEM,31:POKEM-22,31:GOSUB3100
2570 POKEM,33:POKEM-22,33:GOSUB3100
2575 POKEM,32:POKEM-22,32
2580 POKE36877,0
2585 L=L-1:IFL=0THEYGOSUB960:VM=-3:SD=-5.5:GOSUB800:GOTO6000
2590 GOSUB960
2595 GOTO15
2600 POKEM+CO,7:POKEM-22+CO,7
2605 POKE36877,225
2610 FORT=1TO100:NEXT
2615 RETURN
2620 SS=SS+5
2625 FORSC=1TO5
2630 IFPEEK(T(SC)+D)>19ANDPEEK(T(SC)+D)<28THEYPOKET(SC),32
2635 POKE36875,INT(RND(0)*255):FORT=1TO10:NEXT:POKE36875,0
2640 NEXTSC
2645 GOSUB950
2650 RETURN
5000 PRINT"*****"
5001 PRINT"          C00          C00          C00";
5002 PRINT"B          C000000000000000          C000000000000000          C000000000000000";
5003 PRINT"          00000010000000000000          00000000000000000000          0000000000000000";
5004 PRINT"          00000000          000000          CB          0000          CB";
5005 PRINT"          00A          C00000          0A          C0000000          00          C000000000";
5006 PRINT"          00000000000000000000          ";
5010 M=8159:K=7804
5011 T(1)=7862:T(2)=8062:T(3)=8123:T(4)=7917:T(5)=8161
5020 POKE8119,28:POKE8141,29:POKE8119+CO,1:POKE8141+CO,1
5030 RETURN
5100 PRINT"*****"
5101 PRINT"          00000000          000000          ";
5102 PRINT"B          2B          000";
5103 PRINT"          0000          00000000          C0";
5104 PRINT"0000000000          C00A0000000000          C00000          0000A          C0000000";
5105 PRINT"          C000000000          C00000000000";
5106 PRINT"          C0000000000000          C0000000000000          C0000000000000000000";
5107 PRINT"          C000000000000000";
5110 M=3144:K=7830
5120 POKE7730,28:POKE7812,29:POKE7790+CO,1:POKE7812+CO,1
5130 POKE7855,28:POKE7877,29:POKE7855+CO,1:POKE7877+CO,1
5140 T(1)=7927:T(2)=7975:T(3)=7984:T(4)=8065:T(5)=8147
5150 RETURN
5200 PRINT"*****"
5201 PRINT"          00000000&000000          000000000000          0000000000000000";

```


Ever been foiled by the BBC's inability to accept large numbers? Ray Elder shows you how to get round the problem

Expert BBC owners will know that there is a slight problem when getting a number input. If you enter a very large number the machine won't accept it.

Try these lines.

```
10 INPUT A
20 IF A X1000 THEN GOTO 10
```

Now RUN the program and hold down the 9 key until two or more lines of 9s are entered and then press RETURN. The machine never gets to line 20 to check the number but stops with the error report — to all intents a crashed program.

I am in the process of writing the ultimate educational program. Look out for Willy goes Jet Setting on a Flight Simulator and has a Fraking Good Time while Learning the Alphabet from Rippoff Software.

But seriously, when testing my program with some children number input was discovered to be a problem. So I devised a procedure to eliminate this hiccup and here it is.

I first worked out exactly what I wanted in the form of a flow diagram and then programmed each part of the procedure.

PROCprint

First I created PROCprint with the intention that it could be used from any other part of the program. X% and Y% need to be set before calling it, as they provide the horizontal and vertical print positions. The text itself is passed as a parameter into a specific variable text\$. The procedure is designed to work in mode 7 and print double height. This can be altered to print in any mode as I will explain later.

PROCwait

This is a standard procedure which I have only included to make the main procedure operate. Replace it with any that you normally use. The parameter for the length of the delay is sent into variable

delay% and variable time% is used by this routine.

Having set up these two procedures I concentrated on the main one

PROCnumber-input

The limit which the programmer defines in the brackets after the procedure name is passed to the variable limit%

I LOCALised W%, X% and Y% and initialised number\$ to hold the number which would be entered. X% and Y% were set up to the next print position by using POS and VPOS, and as I was using double height mode 7 I had to take 1 away from Y% to get back to the first line on which I was printing the cursor.

The main loop consists of a REPEAT UNTIL and the exit condition was defined as RETURN being pressed: lines 10030 and 10110

I decided to use INKEY\$ rather than GET and store the key pressed in the variable NOS. It became a simple task of checking for DELETE being pressed or a valid number key and operating on number\$ as appropriate: line 10060.

Line 10080 checks on the limits defined by the programmer when the routine is called. The upper limit only is checked and is passed to variable limit%. I also had to add the length check after discovering on test that an unlimited number of zeroes could be entered. I set this limit arbitrary to seven digits (0000000) but more or less can be selected as suits your own program

If either of these conditions are not met then an error message is passed to PROCprint, a short pause is called, the error message wiped, number\$ reset to a nil string and the input buffer cleared.

And finally number\$ is sent to PROCprint. Notice an extra space is also sent in order to wipe any characters from the

last printing which would remain if DELETE had been pressed

To test the set of procedures (each was tested individually as they were written at the development stage) I used lines 10 and 100 as explained in the REMs

As it stands the routine will return a value of 0 if it is entered or if RETURN is pressed and number\$ is empty, to prevent this if required, call the procedure by a line.

```
REPEAT PROCnumber__input
(199) UNTIL VALnumber$ <> 0
```

or if the number 0 is valid but not RETURN on its own.

```
REPEAT PROCnumber__input
(345) UNTIL number$ <> ""
```

One of the advantages of programming like this is that it's easy to modify. To use this in other modes or in single height form there are only two alterations to be made:

remove the -1 from the value of Y% in line 10020 and change line 12010 to:

```
12010 LOCAL Z%:PRINTTAB
(X%,Y%);text$;
```

Interestingly when parameters are sent to PROCprint you can also embed colour, flash or any other screen control in the string to be printed. The whole thing is set out in a fully expanded form and it may be advisable if memory is getting tight to shorten it by the judicious use of multi-statement lines, shorter variable names and omit the REMs.

Procedures in condensed form

```
PROCnumber__input limit%
10010 LOCAL W%,X%,Y%,number$,limit%
10020 W%:=W%+1:Y%:=Y%-1
10030 REPEAT UNTIL VALnumber$ <> 0
10040 INPUT number$
10050 IF number$="" THEN number$="0"
10060 IF INKEY$="DELETE" THEN number$=""
10070 IF INKEY$="0" THEN number$="0"
10080 IF VALnumber$ > limit% THEN PROCprint "Error: limit exceeded"
10090 IF VALnumber$ > 9999999 THEN PROCprint "Error: too many digits"
10100 number$=number$+" "
10110 RETURN number$
```

Listing

```
10000 REM ***** PROCnumber__input *****
10010 LOCAL W%,X%,Y%,number$,limit%
10020 W%:=W%+1:Y%:=Y%-1
10030 REPEAT UNTIL VALnumber$ <> 0
10040 INPUT number$
10050 IF number$="" THEN number$="0"
10060 IF INKEY$="DELETE" THEN number$=""
10070 IF INKEY$="0" THEN number$="0"
10080 IF VALnumber$ > limit% THEN PROCprint "Error: limit exceeded"
10090 IF VALnumber$ > 9999999 THEN PROCprint "Error: too many digits"
10100 number$=number$+" "
10110 RETURN number$
10120 REM ***** PROCwait *****
10130 LOCAL delay%
10140 REPEAT UNTIL TIME >= delay%
10150 ENDPROC
10160 REM ***** PROCprint *****
10170 LOCAL text$,mode%,x%,y%
10180 DEFPROC print (text$,mode%,x%,y%)
10190 DEFERRAL mode%:=mode%+1
10200 DEFERRAL x%:=x%+1
10210 DEFERRAL y%:=y%+1
10220 PRINTTAB (x%,y%);text$
10230 ENDPROC
```

Close-up on Oric assemblers and monitors

Shingo Sugiura has been looking at Oric/Atmos assemblers. His results and conclusions are laid out for you to study. Look closely — you may get some surprises

You must all have been frustrated by the speed (or rather, lack of speed) of Oric BASIC. You might have tried your hand at some compiled high level languages, such as Forth (the only compiled high level language you can buy for the Oric) but even that isn't fast enough for your latest multi-dimensional megagame. The obvious step is to program in machine code, but how?

You can try writing the source code on a piece of paper, looking up the op-code for each instruction, calculate the relative jumps and then enter the hex data with a simple memory editor, but that doesn't get you very far and is certainly very time consuming. You really need an assembler to write code of more than a few bytes.

A good assembler should allow you to create machine code programs in a (fairly) intelligible form using mnemonics, labels, pseudo operators, macros and handle all the donkey work of actually converting the mnemonics into op-codes.

However, Oric doesn't have a built-in assembler like some micros. This means that you have to buy an assembler on tape and load it in before you start to program. Luckily there are a number of assemblers on the market specifically for the Oric/Atmos but, for some reason, they are not widely advertised and aren't often reviewed either. This makes choosing a suitable assembler very difficult. In this article, I have looked at four assembler/monitors. Usually, the number of directives (operators aimed at the assembler rather than the CPU itself), expression evaluator and general user friendliness separate the good assemblers from the rest, so I have concentrated on these points.

Assembler by Superior Software takes up memory from £9800 to £A6FF. The source code is entered in the form of a BASIC program with line numbers, the first of which must be "CALL£A000". I found no trouble entering a simple little routine and making it work. The actual assembly process is very quick with reasonably informative error messages when the assembler encounters one. Most of the standard assembler directives are there.

You are given the choice of whether a listing of the object code is given by the assembler in the form of OPT. EQU allows you to assign a value to a label, RES allows you to reserve a

specified number of bytes of memory, DEFB allows you to insert eight-bit values in memory. A good feature is that the number of parameters isn't defined and the expressions don't have to be of one type, so decimal, ASCII values, hex etc. can be mixed. DEFW allows you to insert a 16-bit number at the assembly address and DEFS allows you insert a string in memory.

The expression evaluator of this assembler is reasonable although not exceptional. What

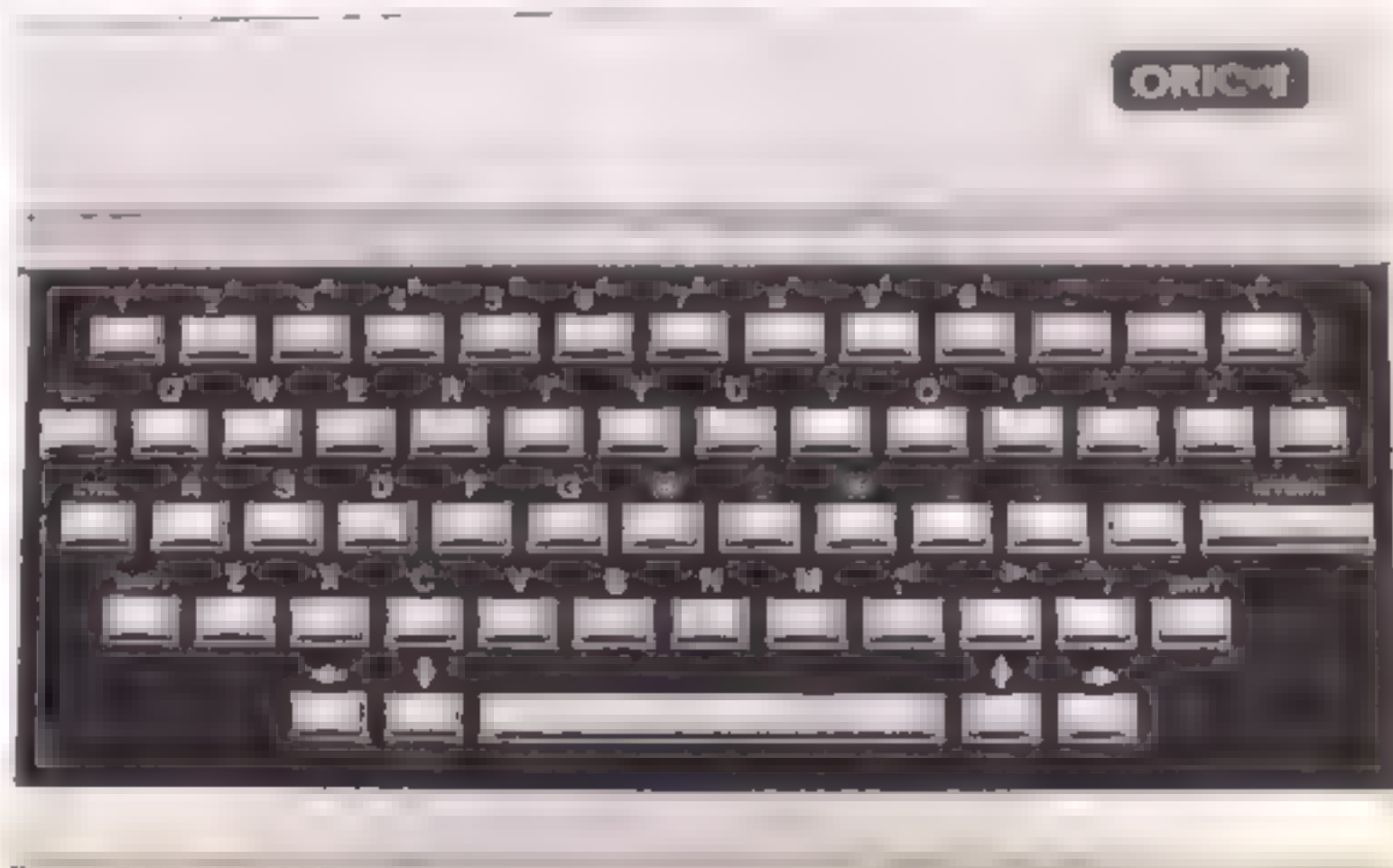
annoyed me most was that you use a hash for hexadecimal rather than the more usual dollar sign or the ampersand. This also means you have to use "@" for immediate addressing rather than hash. However, this assembler does support both hexadecimal and decimal, as well as octal and binary Operators recognised by this assembler are add and subtract but no multiply or divide or modulo. Rather disappointing.

Labels are preceded by a full stop and can be of any alpha-

numeric character (including lower case, hooray!). Comments can be included by preceding them with a back slash

One unforgivable omission was an operator to find the low and hi-byte of a 16-bit value. Another disappointing omission was the facility to assemble a machine code program to run at a particular address, but physically at another. This facility is necessary if you want to write a routine which occupies the same area of memory as the assembler itself.

Overall, a nice but not exceptional assembler. One thing is for sure, the author of this assembler was brought up on Acorn micros. This assembler bears a striking resemblance to the built-in assembler of the Beeb and the Atom.





Superior Software also markets a Toolkit to go with its assembler (both can be bought as one package for £17.90). This utility includes the usual features such as disassembler, block copy, verify two blocks of memory, search for a string of bytes, jump and execute with the option of breakpoints.

The disassembler is reasonable and relatively fast (slowed down by the abominably slow scrolling routine used by the Oric). One omission is the ability to disassemble to tape in the form of a source file so that it may be reassembled at a different address by the above assembler. Also, no facility for tracing subroutines and offsets.

It would have been nice if they had included a facility to set the registers to particular values and a routine to convert from decimal to hexadecimal. Surprisingly, there is no decent memory hex/ASCII dump of any kind and there isn't a full screen memory editor either.

This package isn't really worth £9.95.

Toolkit by Micrograf is more

of a general toolkit than a dedicated machine code monitor or assembler since it contains a host of useful BASIC utilities such as renumber, verify, protect, find etc. However, it does include a reasonable machine code monitor and a full two pass assembler. The machine code monitor includes convert (which converts decimal to hex, hex to decimal), fill a block of memory with a specified byte, execute machine code, search for a string of bytes or characters, jump to a routine, relocate code, display registers, move a block of memory, and a usable (but not brilliant) memory editor/dump. But where's the disassembler?

The assembler managed to assemble my short test programs but the process isn't very user-friendly. The object code isn't listed and there is no symbol table at the end either. It does feature a powerful directive called BYT (which allows you to insert values into memory) and TXT (which allows you to enter strings). In fact, overall the assembler isn't as powerful as the others

reviewed here but this package does include many more features and the assembler is more of a bonus. At £11.95, it should appeal to the less experienced machine code programmers who simply want to write very short machine code routines and incorporate them into their programs (since there's the facility to convert a section of memory into BASIC DATA statements). It's certainly very good value for money.

that the ASCII equivalent of the op-code is not printed, you can only disassemble a line at a time (it's far better to be able to halt the process by pressing a particular key as in the BASIC's List and most of the other disassemblers in this review) and there is no facility to follow subroutine calls. Now, the assembler.

As with all the other assemblers reviewed here, the source code is entered in the form of BASIC statements



Orion comes packaged in a video-type box and again, the instructions booklet uses microscopic print. Orion includes a full two pass assembler as well as a full feature machine code monitor. First, let me describe the machine code monitor.

The various features allow you to convert from hexadecimal to decimal, decimal to hexadecimal, dump memory in hex or ASCII (but not both at the same time), shift a block of memory, fill a block of memory with a given byte (but not a string of bytes) and set break points. This monitor also includes a disassembler but this is rather disappointing in

using standard mnemonics. A facility is provided to assemble a code to run at a particular address but assembled physically at another.

The expression evaluator will handle hexadecimal (which uses a hash as in Oric BASIC rather than the more usual ampersand or the dollar notation), binary and ASCII. Operators are add and subtract and only one may be used per line. No multiply, divide or modulo. The directives include DFB which allows you to insert a byte in memory, DFW which allows you to insert a 16-bit value, DFS which allows you to reserve a block of memory and

DFS which allows you to insert a string. When the assembler actually assembles your source code, a listing of the object code is printed on the second pass. This does slow things down considerably and it would have been nice if there was a facility to stop the listing.

A good feature is the symbol table at the end of assembly. Again, the manual is of very poor quality. Not only is it very difficult to read, it's likely to fall apart very quickly. Also, it isn't nearly comprehensive enough for what could be one of the best assembler/monitors for the Oric

the error followed by a meaningful error message (all 27 of which are listed and explained fully in the manual).

The assembly process is accompanied by a listing of the object code and at the end a sorted symbol table is produced. The directives included are ORG, which specifies where the assembled code should reside (this can be used to assemble a code to run at one address but physically at another address), DB which allows you to insert 8-bit values or strings, DW which allows you to insert 16-bit values in the usual format (with the lo-byte



Finally Lightning Oric Assembler by Mr Micro. Again, the source code is entered in the form of BASIC statements and multiple statements are allowed. Each mnemonic is separated by a colon as in BASIC. Once the source code is entered, it is assembled by typing a colon as in BASIC. Once the source code is entered, it is assembled by typing ERR =USR(lineno) where lineno is the lineno from which the source code starts.

The actual assembly process is quick and the error reporting very comprehensive. When an error is encountered, the assembler lists the offending line and prints an arrow under

preceding the hi-byte), RES which allows you to reserve a section of memory, DS with which you can insert a string with a delimiter (00 in this case).

The more esoteric ones are LST to switch off the listing of object code, SYM to switch off the sorted symbol table at the end of assembly, HLT ON which stops the assembly process as soon as an error is encountered and HLT OFF which makes the assembler continue and assemble as much as possible with the number of errors being printed at the end of assembly.

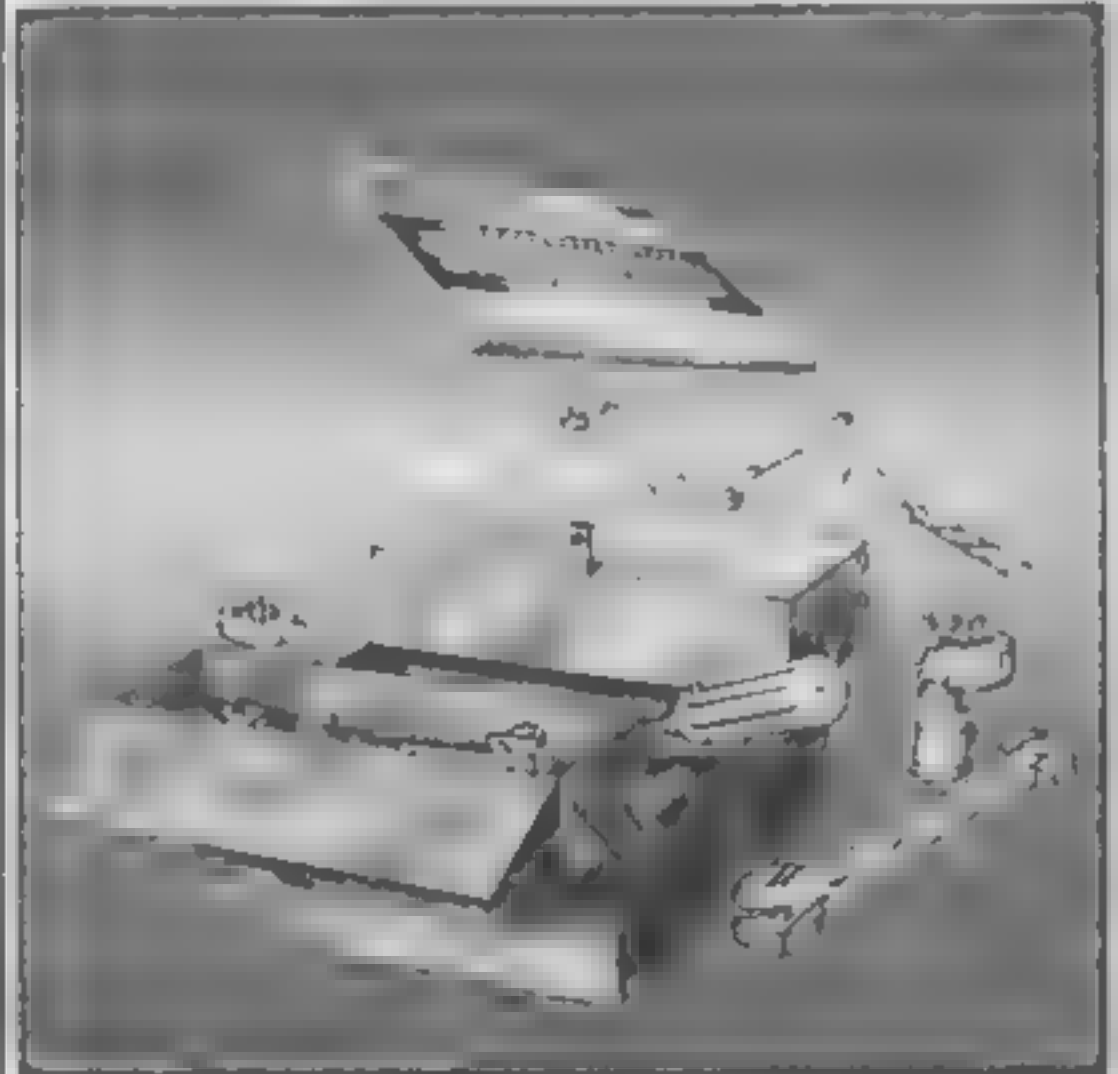
You may be thinking there's nothing wrong with this assembler. Unfortunately, there

ORICAID

TOOLKIT, MONITOR & ASSEMBLER

from

MICROGRAF X



AUTHOR: DESMOND BANDO

FOR THE ORIC-1 (48K)
WITH V1 0 or V1 1 ROM
AND ORIC ATMOS

are a number of niggles. For one, it is far too space-sensitive (for example, it doesn't understand LDA&10; it must be LDA £10) and labels must always be followed by a mnemonic and consist of upper case letters only.

The manual consists of 27 pages of A4 paper. Although it is full of misprints and rather cheaply produced (the pages are photocopies dot matrix print-outs), this manual is actually readable unlike others reviewed here. Not only is the assembler described fully, there is a complete listing of a 6502 disassembler (both in BASIC and machine code) at the end. This not only shows you how machine code programs should be written but facilitates the process of learning how this assembler should be used.

Overall, this is probably the most powerful assembler for the Oric/Atmos. Copied with the (fairly) good manual, Lightning Oric Assembler is highly recommended.

In conclusion, it must be said that the general quality of assemblers for the Oric/Atmos is very low when compared with

similar products for the more "serious" micros such as the Beeb or the more popular Spectrum. For example, the expression evaluators on all these assemblers were very poor and none of them had any sort of macro facility (which allows you to define a set of mnemonics which can be called up by a name) or facility for conditional assembly.

Furthermore, it would have been nice if a simple editor was provided to enter the source code since the Oric BASIC editor is very clumsy and you don't usually enter assembly language with line numbers. What disappointed me most was the disassemblers probably the most frequently used feature of any monitor. Standard facilities such as following subroutines and offsets were missing.

However, out of all the assemblers/monitors reviewed here, Lightning Assembler by Mr Micro stands out as being the most professional (although it is by no means perfect) and should be suitable for those budding machine code programmers out there. For

FEATURE

those who would rather stick to BASIC and write only the time critical parts in machine code, Toolkit by Micrograf with all its powerful BASIC utilities is recommended

Specifications

Assembler, Toolkit, £9 95 each or £17 90 for both. Superior Software, distributed by Darkstar, 2 Regent Court, London N16 5LP

Toolkit £11.95. Micrograf, PO Box 17, Bracknell, Berks RG12 3NQ

Orion £12 95. MC Lothlorien, 56a Park Lane, Poynton, Cheshire SK12 1AF

Lightning Assembler £9 95. Mr Micro., 69 Partington Lane, Swinton, Manchester M27 3AL



TEXAS INSTRUMENTS
99/4A HOME COMPUTER SYSTEM

SUPER SKETCH

POPEYE

99/4A

APPOINTED DEALER

PARCO Electric

PARCO ELECTRICS, 4 DORSET PLACE, NEW STREET, TONDMON, DEVON, EX14 8OS, TELEPHONE (0404) 44425

PARCO ELECTRICS, AM GASTHUIS, 1108, 1112, 1116

GAMESMANSHIP

AMSTRAD	Deck A. ad 4 99	1116	4 99
2861	4 99	High Path 4	5 99
4 99	4 99	Samble	5 99
4 99	4 99	Pasta	5 99
4 99	4 99	Patron	5 99
4 99	4 99	Big Snake	5 99
4 99	4 99	4 99	4 99

SAE for full lists. Special offers available for Spectrum from £1 99, Dragon, BBC, and Electron from £2 99. Cheques & PO's to Gamesmanship, 65 Cassiobury Ave, Bedford, Middx TW14 9JE. Ring (011) 890-6636 for friendly service and guaranteed originals.

If an advertisement is wrong we're here to put it right.

If you see an advertisement in the press, in print, on posters or in the cinema which you find unacceptable, write to us at the address below.

The Advertising Standards Authority.

ASA Ltd, Dept 3 Brook House, Torrington Place, London WC1E 7HN

In Gary Mayhew's program you play the part of a snake. It's a most unusual creature — it only eats mushrooms

Here's a program that puts you into the body of the slipperiest reptiles around

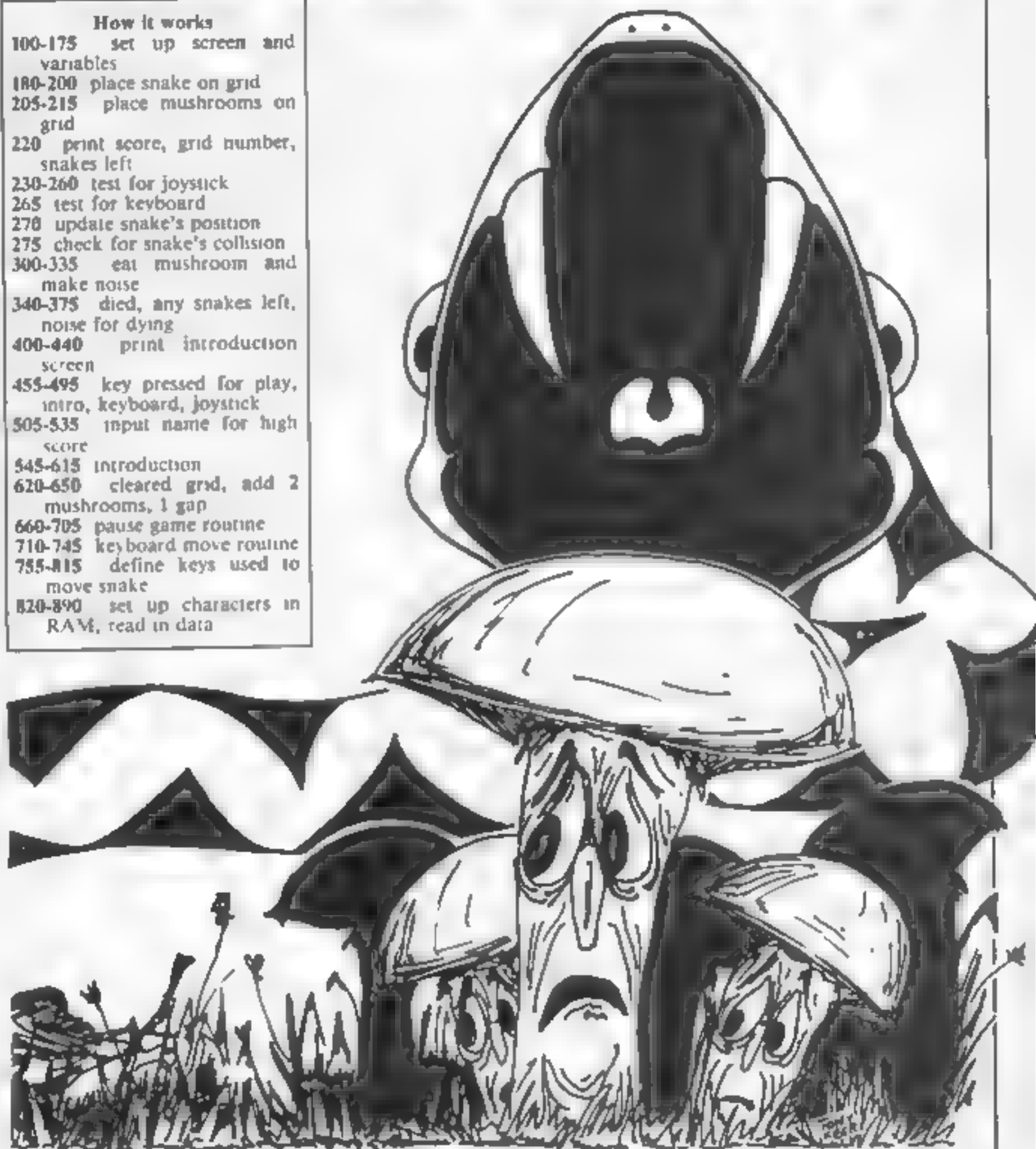
You control a hungry snake going around a grid, eating all the mushrooms on your way. If you hit the edge or the gaps or double back on to your body or tail you will lose a life. If you clear a grid you will have two extra mushrooms to eat, and after the second grid, you also have an extra gap to avoid

If you wish to use the keyboard, press F5 to select keyboard, then press F1 to play. You will be asked to define keys to move up, down, left, right and pause. If the keys are already defined when you play you will be asked if you wish to use the same keys.

Snakes and mushrooms!

How it works
 100-175 set up screen and variables
 180-200 place snake on grid
 205-215 place mushrooms on grid
 220 print score, grid number, snakes left
 230-260 test for joystick
 265 test for keyboard
 270 update snake's position
 275 check for snake's collision
 300-335 eat mushroom and make noise
 340-375 died, any snakes left, noise for dying
 400-440 print introduction screen
 455-495 key pressed for play, intro, keyboard, joystick
 505-535 input name for high score
 545-615 introduction
 620-650 cleared grid, add 2 mushrooms, 1 gap
 660-705 pause game routine
 710-745 keyboard move routine
 755-815 define keys used to move snake
 820-890 set up characters in RAM, read in data

Variables
 DI direction of snake's movement
 HA number of gaps in grid
 HIGH high score
 HS high score holder's name
 A1-A9 parts of snake's body
 CO colour memory
 MUSH number of mushrooms
 SC score
 GR grid number
 LI snakes left
 J2 peek for JOYSTICK 2
 FO food
 KS key pressed
 CH position in memory for user defined characters
 DA data for user defined characters
 53280-53281 screen and border colours
 54296 volume setting
 59273-54278 sound registers



```

00 INY=
01 INY=
02 INY=
03 INY=
04 INY=
05 INY=
06 INY=
07 INY=
08 INY=
09 INY=
10 INY=
11 INY=
12 INY=
13 INY=
14 INY=
15 INY=
16 INY=
17 INY=
18 INY=
19 INY=
20 INY=
21 INY=
22 INY=
23 INY=
24 INY=
25 INY=
26 INY=
27 INY=
28 INY=
29 INY=
30 INY=
31 INY=
32 INY=
33 INY=
34 INY=
35 INY=
36 INY=
37 INY=
38 INY=
39 INY=
40 INY=
41 INY=
42 INY=
43 INY=
44 INY=
45 INY=
46 INY=
47 INY=
48 INY=
49 INY=
50 INY=
51 INY=
52 INY=
53 INY=
54 INY=
55 INY=
56 INY=
57 INY=
58 INY=
59 INY=
60 INY=
61 INY=
62 INY=
63 INY=
64 INY=
65 INY=
66 INY=
67 INY=
68 INY=
69 INY=
70 INY=
71 INY=
72 INY=
73 INY=
74 INY=
75 INY=
76 INY=
77 INY=
78 INY=
79 INY=
80 INY=
81 INY=
82 INY=
83 INY=
84 INY=
85 INY=
86 INY=
87 INY=
88 INY=
89 INY=
90 INY=
91 INY=
92 INY=
93 INY=
94 INY=
95 INY=
96 INY=
97 INY=
98 INY=
99 INY=

```

```

00 INY=
01 INY=
02 INY=
03 INY=
04 INY=
05 INY=
06 INY=
07 INY=
08 INY=
09 INY=
10 INY=
11 INY=
12 INY=
13 INY=
14 INY=
15 INY=
16 INY=
17 INY=
18 INY=
19 INY=
20 INY=
21 INY=
22 INY=
23 INY=
24 INY=
25 INY=
26 INY=
27 INY=
28 INY=
29 INY=
30 INY=
31 INY=
32 INY=
33 INY=
34 INY=
35 INY=
36 INY=
37 INY=
38 INY=
39 INY=
40 INY=
41 INY=
42 INY=
43 INY=
44 INY=
45 INY=
46 INY=
47 INY=
48 INY=
49 INY=
50 INY=
51 INY=
52 INY=
53 INY=
54 INY=
55 INY=
56 INY=
57 INY=
58 INY=
59 INY=
60 INY=
61 INY=
62 INY=
63 INY=
64 INY=
65 INY=
66 INY=
67 INY=
68 INY=
69 INY=
70 INY=
71 INY=
72 INY=
73 INY=
74 INY=
75 INY=
76 INY=
77 INY=
78 INY=
79 INY=
80 INY=
81 INY=
82 INY=
83 INY=
84 INY=
85 INY=
86 INY=
87 INY=
88 INY=
89 INY=
90 INY=
91 INY=
92 INY=
93 INY=
94 INY=
95 INY=
96 INY=
97 INY=
98 INY=
99 INY=

```


You only have three minutes to save the world! Can you beat the enemy forces in Stephen Roberts' game?

You are the pilot of an exploratory scout ship on a mission to another galaxy. You discover a fleet of Earth's deadliest enemies launching an attack on Earth.

Intent on doing your bit to save Earth you give chase. You can sight one enemy craft at a time and shoot them with your laser guns.

You only have three minutes to shoot as many as you can. Three minutes to save the universe!

These are the keys for control: 5 moves left, 6 down, 7 up, 8 right and 0 fires laser guns.

Space battle

Variables

hl high score
sc score
ti time
s,t position when enemy can be shot
r,e position of enemy
i,u position of stars

How it works

10-45 sets up title screen
60-70 sets up variables
80-135 sets up playing screen
140-174 checks if key is pressed
3000-3050 end of game and high score
5000-5020 checks if enemy is shot
6000-6450 decides which way enemy craft moves
8000-8090 instructions
9000-9110 sets UDGs

Screen dump



Listing

```

10 BORDER 0: PAPER 0: INK 7: CLS
20 PRINT AT 8,8;" SPACE BATTLE";AT 10,9;"by S.Roberts"
30 GO SUB 9000
40 PRINT AT 8,5; INK 2;" ";AT 8,22;" "
45 PAUSE 90: CLS
50 GO SUB 8000
60 PAUSE 500: CLS
62 LET hl=0
65 LET sc=0
66 LET ti=180
67 LET t=14
68 LET s=11
70 PRINT FLASH 1;AT 10,10;"PRESS A KEY"
80 PAUSE 10000
82 CLS
85 PRINT AT 1,4; INK 4;"SCORE-";sc
90 INK 5: BRIGHT 1: PLOT 16,0: DRAW 223,0: DRAW 16,16: DRAW 0,125: DRAW -16,16
: DRAW -223,0: DRAW -16,-16: DRAW 0,-125: DRAW 16,-16
100 PLOT 32,0: DRAW 24,16: DRAW -8,-16: PLOT 200,0: DRAW -8,16: DRAW 24,-16
105 LET v=INT (RND*15)+4: LET h=INT (RND*28)+1
106 FOR o=1 TO 100
107 LET i=RND*250
108 LET u=RND*136+16
109 PLOT INK 7;i,u: NEXT o
110 PRINT AT 10,14; INK 6;" "
120 PRINT AT 12,14; INK 6;" "
130 PRINT AT v,h; INK 6;" "
135 LET ti=ti-.17: PRINT AT 1,16; INK 7;"TIME-";INT ti;" "
138 IF ti<0 THEN GO SUB 3000
140 IF INKEY$="5" THEN LET h=h+1: PRINT AT v,h-1;" "
150 IF INKEY$="6" THEN LET v=v-1: PRINT AT v+1,h;" "
160 IF INKEY$="7" THEN LET v=v+1: PRINT AT v-1,h;" "
170 IF INKEY$="8" THEN LET h=h-1: PRINT AT v,h+3;" "

```

PROGRAM

```
174 IF INKEY$="0" THEN PLOT 56,16: DRAW INK 4;67,68: PLOT 192,16: DRAW INK 4
;-67,68: BEEP .1,19: LET t1=t1-.19: PRINT AT 1,21; INK 7;INT t1;" ": INK 0: PLOT
56,16: DRAW 67,68: PLOT 192,16: DRAW 67,68: INK 7: GO SUB 5000
178 IF v<4 THEN LET v=4
180 IF v>18 THEN LET v=18
185 IF h<1 THEN LET h=1
190 IF h>27 THEN LET h=27
195 GO SUB 6000
200 PRINT AT v,h; INK 6;" "
210 GO TO 110
3000 PRINT AT 11,11; FLASH 1;"GAME OVER"
3010 IF sc>h1 THEN LET h1=sc: PRINT AT 15,9; FLASH 1;"NEW HIGH SCORE": INPUT "E
NTER YOUR NAME ";g$
3025 PRINT AT 8,6;"HI-";h1;" BY ";g$
3040 PAUSE 10000
3050 GO TO 65
5000 IF s=v AND t=h THEN PRINT INK 2; FLASH 1; PAPER 7;AT 11,14;" ": PRIN
T AT 12,14;" ": BEEP .5,10: GO TO 5010
5005 RETURN
5010 LET sc=sc+10
5012 PRINT AT 1,10; INK 4;sc
5015 PRINT AT v,h;" ": LET v=INT (RND*13)+4: LET h=INT (RND*28)+1: PRINT AT v,
h;" "
5020 RETURN
6000 LET j=INT (RND*0)
6010 IF j=1 THEN GO SUB 6100
6020 IF j=2 THEN GO SUB 6200
6030 IF j=3 THEN GO SUB 6300
6040 IF j=4 THEN GO SUB 6400
6050 IF v<4 THEN LET v=4
6060 IF v>18 THEN LET v=18
6070 IF h<1 THEN LET h=1
6080 IF h>27 THEN LET h=27
6085 PRINT AT v,h;" "
6088 IF INKEY$="0" THEN GO TO 174
6090 RETURN
6100 LET v=v-1: PRINT AT v+1,h;" "
6150 RETURN
6200 LET h=h+1: PRINT AT v,h-1;" "
6250 RETURN
6300 LET h=h-1: PRINT AT v,h+3;" "
6350 RETURN
6400 LET v=v+1: PRINT AT v-1,h;" "
6450 RETURN
7990 STOP
8000 PRINT AT 3,1;"SHOOT ENEMY CRAFTS WITH YOUR"
8010 PRINT : PRINT " LASER GUNS WHEN THEY ARE ON"
8020 PRINT : PRINT " TARGET, YOU HAVE 180 SECONDS TO"
8030 PRINT : PRINT " DESTROY AS MANY AS YOU CAN"
8040 PRINT AT 11,11;"CONTROLS"
8050 PRINT : PRINT TAB 6;" 5 MOVES SIGHT LEFT"
8060 PRINT : PRINT TAB 6;" 6 MOVES SIGHT DOWN"
8070 PRINT : PRINT TAB 6;" 7 MOVES SIGHT UP"
8080 PRINT : PRINT TAB 6;" 8 MOVES SIGHT RIGHT"
8090 PRINT : PRINT TAB 6;" 0 FIRES LASER GUNS"
810 RETURN
9000 FOR a=USR "a" TO USR "g"+7
9010 READ b
9030 POKE a,b: NEXT a
9040 RETURN
9050 DATA 0,0,3,255,81,0,0,0
9060 DATA 126,24,255,255,219,126,60,0
9070 DATA 0,0,192,255,138,0,0,0
9080 DATA 128,128,128,128,128,128,128,255
9090 DATA 255,1,1,1,1,1,1,1
9100 DATA 255,128,128,128,128,128,128,128
9110 DATA 1,1,1,1,1,1,1,255
```

Introducing the Dots 32K BBC £14.95

Blandford Press, Link Hse, West St, Poole, Dorset

The book that accompanies this package is written by keyboard player Dave Stewart and concentrates on the reading and writing of music for rock musicians.

Unfortunately the programs supplied ignore this idiom entirely and bases all its problems and exercises on folk and classical tunes with a lame excuse at the end to justify this.

The program is split into five parts covering clefs, keyboard and guitar fingering, note lengths, intervals and chords and composition. There are a number of bugs in these programs with

two containing wrong line references, one failing to chain the next program and one causing a bad program as it does chain the next part.

For a package of this type this is unforgivable and shows a great lack of care and testing. All the programs are drill and test based, there is a little teaching content followed by a test and then more teaching.

A final major criticism is that when it is testing your manuscript writing skills it never shows the tune written on staves. It uses a complex and unnecessary coding system. One to avoid at all costs.

instructions	45%
graphics	35%
ease of use	50%
value for money	25%



Learn Basic Programming Spectrum £14.95

Logic 3, Unit 18, Wye Est, London Rd, High Wycombe HP11 1LH

This package looks impressive and there are a number of items to consider once you get inside the box. There is a large book, two cassettes — double sided — and a flowchart stencil. The stencil shows that this is a serious course trying to teach programming and taking the beginner through tried and tested avenues to a full understanding of the subject, leaving him using good technique that will not entail relearning later.

The book starts at the lowest level and ends with the programming of simple games.

This makes it suitable for the very raw beginner and I expect the user to find that progress is fast.

The programs are listed in the book and on occasions there are flowcharts as well.

The strangest items in the book are the 'experiments' which are really self assessment questions and tasks but they are well chosen and not too difficult which means that they should encourage even the slower learners to have a go. This is a well thought out and well executed package.

instructions	90%
graphics	N/A
ease of use	90%
value for money	80%



Learn BASIC Programming 32K BBC £14.95

Logic 3, Unit 18, Wye Est, London Rd, High Wycombe HP11 1LH

This is a course for those who want to understand the intricacies of programming instead of just playing games. The package comprises a flow chart stencil, two cassettes and a large A4 book. BASIC is a very easy language and this package makes learning even easier. There are a couple of points that the authors make with which I would take issue.

The BBC machine has an advanced BASIC that is meant to be used differently to older, less structured, languages. This book doesn't take sufficient note of this difference and whilst their attitude is explained in the introduction, I don't accept the argument fully. Another small niggle is the binding of the book itself. It is case bound, it's impossible to lie it flat on the desk. A simple spiral binding would make this simplicity itself.

This is a good course, but these two tiny problems make it much more difficult to recommend that it would have been. There are other courses for the BBC that take the BASIC into better account and I would prefer one of these.

instructions	75%
graphics	N/A
ease of use	70%
value for money	65%



Useful handful

Some utilities to keep your micro busy: household accounts and programming hints

Mini Office 48K Spectrum £5.95

Database, Europa Hse, 68 Chester Rd, Hazel Grove, Stockport

At first sight it appears that you might be getting a bargain; four programs on one tape. But closer inspection proves differently.

The first program is a so-called word processor. It comes nowhere near the genuine article. Words are not processed, merely stored, in a choice of two fonts.

The second program is the best on this tape, and probably the most useful. It is a database for storing records or files, and the example given is a personal address book. This has fields for forename, surname, address, phone number and age, and the complete records can be ordered

by any field. For instance, ages could be used and sorted into ascending order. Sorting and searching are very fast and the number of records is limited. The third program is called Spreadsheet, and it is suggested that you might use it for your household accounts. Most householders find a small notebook quite adequate. Last, and certainly least, is a program used to draw graphs in conjunction with the previous program.

instructions	80%
display	60%
ease of use	70%
value for money	50%



UAP Sinclair QL £22.95

D A Bando, 81 Mount Pleasant, Wembley, Middx

UAP stands for Unique Assembler Package, and what it does is to provide the QL machine language programmer with a powerful suite of programs to create machine code routines.

The principle part is the assembler/editor. Standard 68000 assembly language mnemonics can be entered to create a source file. A powerful set of 24 commands plus the facility for full screen editing of assembly language lines combine to make life easy. Labels of any length can be used, and the assembler supports ORG, DC, DS, MACRO, ENDM, MAC, and EQU. Numbers can be entered in one of several bases, and text entry is permitted. The source program can be fully documented, and saved on microdrive, or listed on a printer.

The ASM command creates the object file, which can be saved on microdrive. The two pass assembler gives a list of label addresses, and reports any

At a time when similar packages are appearing at higher prices, UAP will give serious QL programmers a complete machine code package at a reasonable price.

instructions	70%
display	90%
ease of use	80%
value for money	90%



Full screen editor

Use this program to produce attractive displays which you can save without yards of PRINT AT statements. Diana Smith gives you an in-depth explanation of how it works

This simple full-screen editor will help you produce attractive displays which can be saved without the need for lines and lines of PRINT AT statements.

When a ZX81 with more than 3¼K of memory is switched on, the display file consists of a NEWLINE marker and 24 lines of 32 spaces with each line ending in a NEWLINE marker. The start of the display file can be found by looking up the value of the system variable D-FILE

By stepping through the display file with judicious use of PEEKs and POKEs, we can move a cursor and print or erase characters.

The program listing starts by defining AS as the first variable. This will be used to store the screen once editing is complete. It is most important that AS is the first defined variable or the program will not work.

Lines 20 and 30 look up the values stored in the system variables D-FILE and VARS. Lines 110 to 140 set up a screen of graphic A characters. The editor proper consists of lines 200 to 410. A cursor (the inverse of the original character) is positioned at the top left of the screen. The program then does some checks every time a key is pressed. Tokens are not accepted. The cursor keys move the cursor around the screen in the directions you would expect.

RUBOUT gives a graphic A
STOP gives a white SPACE
NEWLINE will take you out of the editor.

Note that you will BREAK the program if you use the SPACE key instead of STOP to get a space.

It takes about 20 seconds for the BASIC to transfer the display in lines 500 to 610 into AS. If you are using the SCREEN\$ routine, you should key in the line 500 RAND USR 16514 in place of lines 500 to 610. This will then do the job instantly.

Lines 700 and 710 will confirm that the display has

been transferred to the string array AS, allowing it to be saved on tape. Remember that RUN clears the variables, so you should run your own programs which use this routine with a GOTO.... (line number) or you will lose the display you have saved.

Once a display has been POKEd into AS you can transfer it to another suitably dimensioned string array with a LET statement, and use the routine to create further displays. When you have set up your displays, the whole routine can be deleted and, for example, an index card produced simply by the statement PRINT AS

Inverse Video Lines

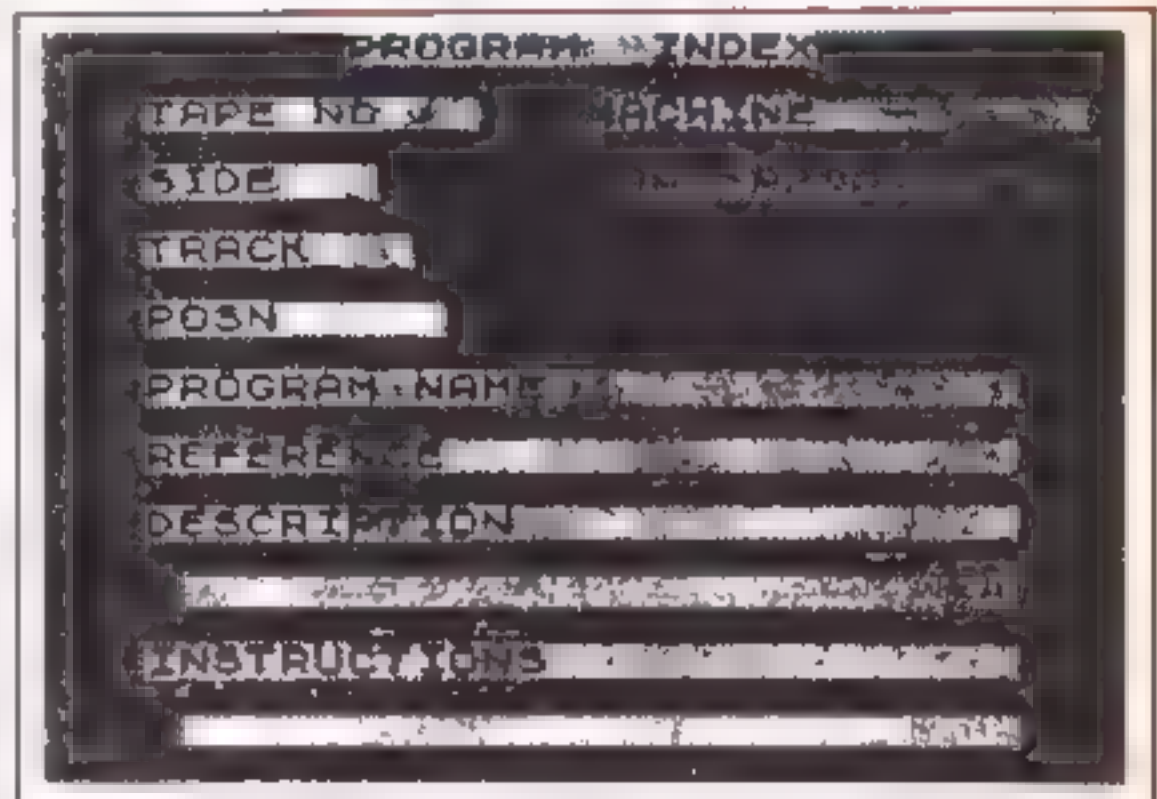
```

8 EDITOR
9 SET UP VARIABLES
109 FILL SCREEN WITH GRAPHIC A
198 FULL SCREEN EDIT
199 POSITION CURSOR
249 AWAIT KEY
279 ERASE CURSOR
289 POKE CHAR TO SCREEN
299 RUBOUT GIVES GRAPHIC A
309 STOP GIVES SPACE
319 RESET CURSOR POSITION
409 IF NOT NEWLINE, BACK FOR NEXT KEY
499 TRANSFER SCREEN TO AS
509 FIND LOCATION OF AS(1)
519 FIND START OF DISPLAY FILE
529 FOR THE 22 LINES
539 SKIP THE END-LINE MARK
549 TRANSFER THE LINE
569 INCREMENT COUNTERS
699 PRINT SCREEN FROM AS
  
```

Variables

AS stores display
D-FILE holds value of system variable D-FILE, location of first byte of display file
VARS holds value of system variable VARS, location of first byte of variables file
BS string holding graphic As
N FOR... NEXT loop variable
L line number
C column number
CURSOR position in display file

Screen dump



I code of character entered via INKEYS
ARRAYPOS address of character within AS
SCREENPOS address of character within display file

How it works

8-110 set up variables
120-140 print screen background
198-240 position cursor
250-270 await input
279-410 respond to input
499-620 transfer screen to AS
699-710 print AS

Hints on conversion

If your machine has a display file which cannot be PEEKed and POKEd, you may be able to substitute SCREEN\$(L,C) for PEEK and PRINT AT L,C for POKE. You will not need to use system variables if this is the case.

The CODEs will need to be changed for your machine. ZX81 codes used are:
119 RUBOUT
227 STOP
115 CURSOR RIGHT
114 CURSOR LEFT
113 CURSOR DOWN
112 CURSOR UP
118 NEWLINE

Listing

```

8 REM EDITOR
9 REM SET UP VARIABLES
10 DIM AS(22+32)
20 LET DFILE=PEEK 16396+256*PEEK 16397
30 LET VARS=PEEK 16400+256*PEEK 16401
109 REM FILL SCREEN WITH GRAPHIC A
110 LET BS=""
120 FOR N=0 TO 21
130 PRINT BS
140 NEXT N
198 REM FULL SCREEN EDIT
199 REM POSITION CURSOR
200 LET L=0
210 LET C=0
  
```

```

220 FOR N=0 TO 1 STEP 0
230 LET CURSOR=DFILE+L*33+C+1
240 POKE CURSOR,PEEK CURSOR+128
249 REM WAIT KEY
250 IF INKEY$("<") THEN GOTO 250
260 IF INKEY$="" THEN GOTO 260
270 LET I=CODE INKEY$
279 REM ERASE CURSOR
280 POKE CURSOR,PEEK CURSOR-128
289 REM POKE CHAR. TO SCREEN
290 IF I<64 THEN POKE CURSOR,I
299 REM ABOUT GIVES GRAPHIC
300 IF I=119 THEN POKE CURSOR,0
309 REM STOP GIVES SPACE
310 IF I=227 THEN POKE CURSOR,0
319 REM RESET CURSOR POSITION
320 IF I<64 OR I=119 OR I=227 T
HEN LET C=C+1
330 IF I=115 THEN LET C=C+1
340 IF I=114 THEN LET C=C-1
350 IF I=113 THEN LET L=L+1
360 IF I=112 THEN LET L=L-1
370 IF C=-1 THEN LET C=31
380 IF C=32 THEN LET C=0
390 IF L=-1 THEN LET L=21
400 IF L=22 THEN LET L=0
409 REM IF NOT NEWLINE BACK
OR NEXT KEY
410 IF I(">118) THEN NEXT N
499 REM TRANSFER SCREEN TO AS
500 FAST
509 REM FIND LOCATION OF 0111
510 LET ARRAYPOS=VARS+8
519 REM FIND START OF DISPLAY
FILE
520 LET SCREENPOS=DFILE
529 REM FOR THE 22 LINES...
530 FOR L=0 TO 21
539 REM SKIP THE END-LINE CHAR
540 LET SCREENPOS=SCREENPOS+1
549 REM TRANSFER THE LINE

```

```

550 FOR C=0 TO 31
560 POKE ARRAYPOS,PEEK SCREENPO
5
569 REM INCREMENT COUNTERS
570 LET ARRAYPOS=ARRAYPOS+1
580 LET SCREENPOS=SCREENPOS+1
590 NEXT C
600 NEXT L
610 SLOW
620 STOP
699 REM PRINT SCREEN FROM AS
700 CLS
710 PRINT AS

```



It's easy to complain about advertisements. But which ones?

Every week millions of advertisements appear in print on posters or in the cinema

Most of them comply with the rules contained in the British Code of Advertising Practice

But some of them break the rules and warrant your complaints.

If you're not sure about which ones they are, however, drop us a line and we'll send you an abridged copy of the Advertising Code

Then, if an advertisement bothers you, you'll be justified in bothering us

The Advertising Standards Authority. ✓
If an advertisement is wrong, we're here to put it right

ASA Ltd Dept 2 Brick House Torrington Place London WC1E 7HN

This space is donated in the interests of high standards of advertising

You could be on our pages

We welcome programs, articles and tips from our readers. If you feel that your work meets our standards, please submit it to us for consideration for publication.

- Programs must always be sent on cassette. Listings are helpful, but not necessary. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.
- Articles on using home computers should be no longer than 2,000 words. Don't worry about your writing ability — just try to keep to the style in HCW. Articles most likely to be published will help our readers make better use of their micros by giving useful ideas, possibly with programming examples. We will convert any sketched illustrations into finished artwork.
- Tips are short articles, and brief programming routines. Your hints can aid other computer users.

All submissions will be acknowledged and the copyright in such works which will pass to Argus Specialist Publications Ltd will be paid for at competitive rates.

Keep a copy of your work and include an SAE. Label everything clearly and give a daytime and home phone number if you can.

All work for consideration should be sent to:

Paul Liptrot, Home Computing Weekly,
No. 1 Golden Square, London W1R 3AB

bookware

Many of the flood of books about the Sinclair QL seem to be variants of the QL User Guide, hopefully without all the bugs which featured in the early edition. I have set these to one side as I rather enjoyed hunting the bugs and achieving a score of eight bugs in a 10-line program in the Beginners' Section! The two books reviewed here avoid mentioning the Pison software bundled with the QL, and cover the areas of games and simulations

The QL Book of Games by R G Hurley and D D Virgo, £6.95 from Micro Press, must be one of the many QL books begun before the authors could lay their hands on the hardware. The book contains listings for 13 different games programs, all with graphics. The selection covers a very good range of different types; games of chance, strategy, adventure and arcade games are all there.

My favourite are strategy and adventure games, so the first program I keyed in was Othello, one of the shortest in these categories. To my surprise, at the head of the listing was a boxed warning, "The game should be entered and played in the Caps Lock Mode.." One of the nice things about the QL is that this is unnecessary. When typing keywords in lower case,

With the dearth of QL software, books are an essential for the QL owner. In the first of a regular series, Colin Wilton-Davies looks at two of the titles currently available

QD'S displays them, at least partially, in upper case when the line is entered. When writing your own programs, this can draw your attention to the inadvertent use of a keyword as a variable or procedure name

Another nice thing is that one can use the operator '=' with strings to ignore cases altogether. Worse was to follow: consecutive line numbers from 1 to 20, then 25, 30 and 190! This means that you can't use the "AUTO" command when keying, but you have to type out each line number. Didn't Hurley and Virgo know about the "RENUMBER" command? Probably not! The programs all

seem to have been written originally for another version of BASIC, more primitive even than the Microsoft one, with some last-minute alterations for QL graphics and sound

The graphics and sound are very good in the three games I keyed in. The hornpipe at the beginning of Sub Hunt is excellent, and the use of panning windows to animate the submarines very well done. Keying-in the games would have been a lot less tedious if the authors had used some of the best features of SuperBASIC such as "SE LECT ON", "ELSE" and more procedures instead of incredibly repetitive "IF

to do this will find that Sky-Diver loses points when landing on half of the target, and gains points when just missing the other half.

Othello not only plays one of the weakest games, but doesn't recognise when the game is over. I actually managed to eliminate all the computer's pieces, which the ZX81 never allowed. Even then, I was asked to make another move, which was then rightly rejected as illegal. No winner was given.

As far as the book is a collection of ready-to-play games, I would award it about two out of ten. Think of it rather as one big adventure game for people who like improving and debugging other people's programs — in this case I would give it 9 out of 10!

Introduction to Simulation Techniques on the Sinclair QL by John Cochrane, £6.95 from Sunshine Books is a complete contrast to the QL Book of Games. The author must have felt that the title was highbrow enough to be off-putting, and included a game to make up for this. That may have been his only mistake, for although the bouncing ball is well simulated in real time, you can win the game without moving your bat!

There ends all resemblance to the other book. This one is very well written, introducing the subject in many interesting and useful ways, illustrated by well-structured programs which illustrate the great power of SuperBASIC. It is a pleasure to gain insight whilst working through this book, and at the end you are left with a collection of programs which will actually do useful things like weather-forecasting, financial modelling and critical path analysis. If I wasn't interested in all of these subjects when I opened the book, I was after I'd worked through it.

I hope we will see many more books by this author, and I don't think I'm being over-generous in rating his score as 9½ out of 10.

THEN GO TO" sequences. At a rough guess, 25% could have been lopped off the listings. Not, then, a book from which to pick up techniques of good programming

OK, but do the games work? The sad answer is, not very well. Sub Hunt was the most successful, but one submarine remained unscathed by direct hits. You are left to find out for yourself that you should have pressed the F1 (TV) key rather than the F2 (Monitor) key before running any of the programs. Monitor users failing



Simon Mills' set of four utilities will come in most useful in your programs — and you can use them for either Commodore 64 or VIC-20

Here are four short utilities for either the VIC-20 or Commodore 64. You will find them useful in many of your own programs. CP/V and Help facilitate the use of the 1540/1541 disc drive, while Find will come in handy for locating variables within a program. Finally Renumber does just that.

CP/V and Help

These programs make use of the 1540/1541 disc drive easier. All the commands are explained by typing help.

The Help program should be saved after CP/V. Help explains all the commands and how they are used, e.g.

ERA filename

means that to erase a file or program you type ERA followed by a space and the name and then press Return.

The program will also work on the Commodore 64 with a

Helping hand

few alterations:

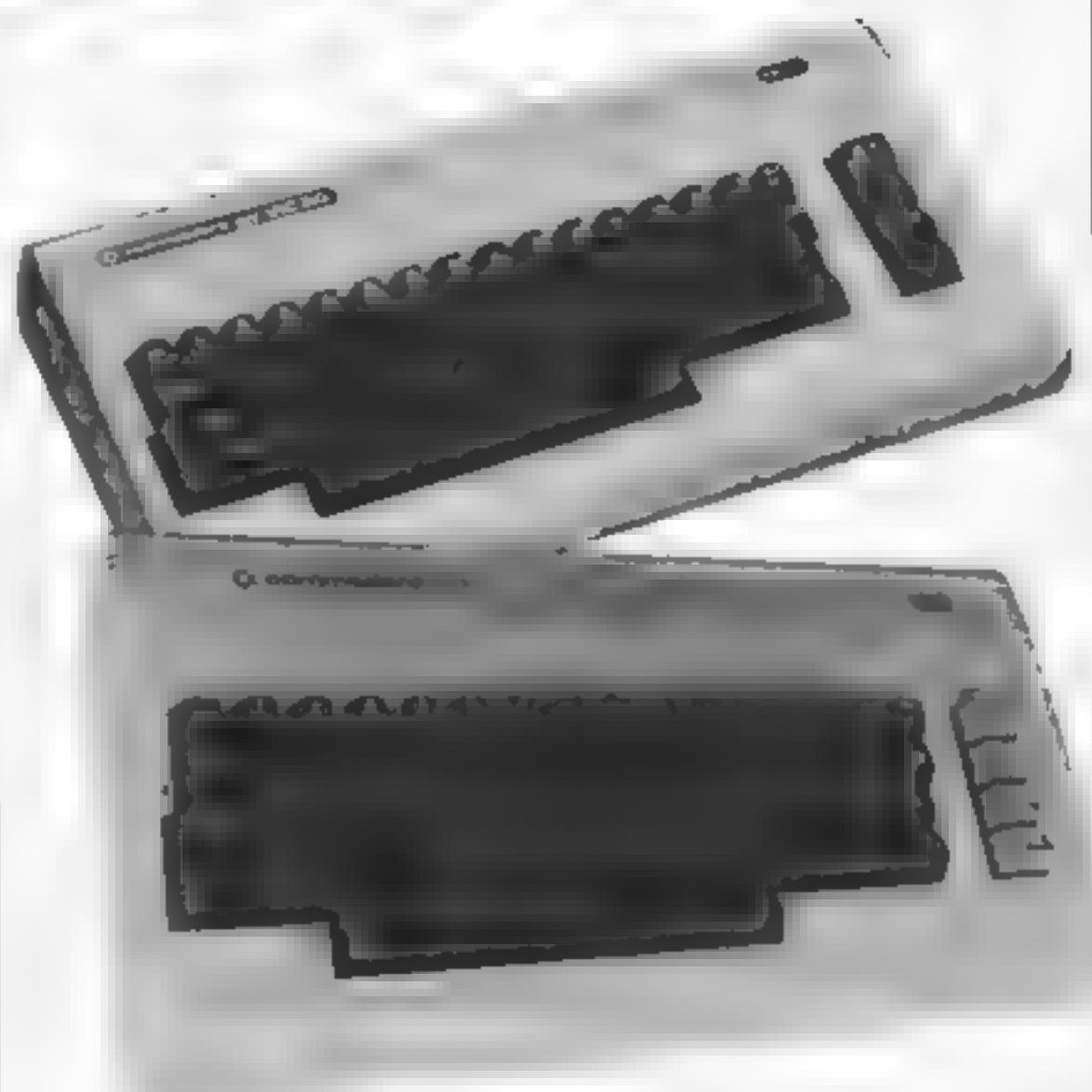
- 1 POKE 36879,27 changes the border to cyan and the screen to blue. Should be replaced with the relevant 64 POKES
- 2 POKE 36878,15 turns volume to full, and should be replaced.
- 3 POKE 36876,195 plays a C in a high tone and should be replaced

Everything else is the same.

How It works

```

0-900 main program
1000 directory
2000 SYSGEN
3000 display error
4000 VALIDATE
5000 print time
6000 initialise
7000 END
8000 rename
    erase
10000 LOAD
14000 format
15000 copy
17000 set time
18000-end check, various sub-routines
  
```



Listing — CP/V

```

0 REM CP/V - CONTROL PROGRAM FOR VICS 20 (C) 1984 SIMON MILLS
5 PRINT "CP/V VERS 2.3" POKE 36879,27:LI=15
10 W1$=" "W2$=" ":PRINT ""
20 OPEN 1,0,0:IF PUT#1,A$CLOSE 1:PRINT
30 IFA$="DIR" THEN 1000
40 IFA$="SYSGEN" THEN 1000
50 IFA$="ERR" THEN 3000
60 IFLLEFT$(A$,3)="VAL" THEN 4000
70 IFA$="TIME" THEN 5000
71 IFLLEFT$(A$,7)="SETTIME" THEN 17000
75 IFA$="HELP" THEN L$="P IN":OV=6:UL$="HELP":GOTO 10010
80 IFA$="INIT" THEN 6000
90 IFLLEFT$(A$,3)="ERASE" THEN 8000
100 IFLLEFT$(A$,3)="REN" THEN 8000
110 IFLLEFT$(A$,3)="ER" THEN 7000
120 IFLLEFT$(A$,4)="LOAD" THEN OV=3:L$="RUN":GOTO 10000
130 IFLLEFT$(A$,4)="TAPE" THEN OV=1:L$="RUN":GOTO 10000
140 IFLLEFT$(A$,4)="LIST" THEN OV=1:L$="LIST":GOTO 10000
150 IFLLEFT$(A$,4)="TAP" THEN OV=6:L$="LIST":GOTO 10000
160 IFLLEFT$(A$,3)="FOR" THEN 14000
170 IFLLEFT$(A$,4)="CO" THEN 15000
800 PRINT:PRINT "BAD COMMAND":PRINT:GOTO 10
1000 PRINT:OPEN 1,0,0,"$0":CT=0
110 GET#1,A$,B$
  
```

4 PROGRAM

```
1000 GET#1,A$,B$
1040 GET#1,A$,B$
1050 C=0
1060 IF A$("<") THEN C=ASC(A$)
1070 IF B$("<") THEN C=C+ASC(B$)*256
1080 PRINT"BLOCKS FREE";MID$(STR$(C),2);TAB(3);"ENTRIES":
1090 GET#1,B$;IF ST("<") THEN 1500
1100 IF B$("<")CHR$(34) THEN 1090
1110 GET#1,B$;IF B$("<")CHR$(34) THEN PRINTB$;GOTO1110
1120 GET#1,B$;IF B$=CHR$(32) THEN 1120
1130 PRINT TAB(10);C$=""
1140 C$=C$+B$;GET#1,B$;IF B$("<") THEN 1140
1150 PRINT"BLOCKS FREE";LEFT$(C$,3)
1170 IF ST=0 THEN CT=CT+1;GOSUB2000;GOTO1030
1180 CT=CT-1;C$=RIGHT$(STR$(CT),LEN(STR$(CT))-1)
1190 PRINT"BLOCKS FREE";PRINT"ENTRIES";PRINT;LI=15
1200 CLOSE 1;GOTO10
1210 PRINT"SAVE"+CHR$(34)+"/V"+CHR$(34)+",8";PRINT"PU"
2010 POKE198,5;POKE632,13;FORI=1TO4;FORJ=632+I,13;NEXT;END
3000 OPEN1,8,15;INPUT#1,A,B,C,D;CLOSE1;PRINT"ERROR";A
3010 PRINTB$;PRINT;GOTO10
4000 OPEN1,8,15;PRINT#1,".2";CLOSE1;GOTO10
5000 PRINTLEFT$(T$,2);MID$(T$,3,2);RIGHT$(T$,2);PRINT;GOTO10
6000 OPEN1,8,15;PRINT#1,"10";CLOSE1;PRINT;GOTO10
7000 PRINT"BYTES FREE";END
8000 FORI=1TOLEN(A$);IFMID$(A$,I,1)=" " THEN8020
8010 NEXT
8020 W$=""W$=""12-1+1;FORI=1TOLEN(A$);W$=MID$(A$,I,1)
8030 IFW$="" THEN8050
8040 W$=W$+M$;NEXT
8050 W$=MID$(A$,I+1,LEN(A$))
8060 OPEN1,8,15;PRINT#1,"001"+W$+" "+W$;CLOSE1;PRINT;GOTO10
8070 FORI=1TOLEN(A$);IFMID$(A$,I,1)=" " THEN8020
8080 NEXT
8090 W$=MID$(A$,2+1,LEN(A$))
8100 W$="" THENGOSUB18000
8110 OPEN1,8,15;PRINT#1,"001"+W$;CLOSE1;PRINT;GOTO10
10000 W$=MID$(A$,6,LEN(A$))
10010 IFW$="" THENPRINT"INPUT=";GOTO10
10020 PRINT"LOAD"+CHR$(34)+"/V"+CHR$(34)+",5";PRINT"LOAD";C$=""
10030 POKE198,10;POKE632,13;FORI=1TO9;FORJ=632+I,13;NEXT;END
14000 GOSUB18000
14050 FORI=1TOLEN(A$);IFMID$(A$,I,1)=" " THEN14070
14060 NEXT
14070 FORJ=1+1TOLEN(A$);W$=MID$(A$,J,1);IFW$="" THEN14090
14080 W$=W$+M$;NEXT
14090 W$=MID$(A$,J+1,LEN(A$))
14100 OPEN1,8,15;PRINT#1,"001"+W$+" "+W$;CLOSE1;PRINT;GOTO10
15000 FORI=1TOLEN(A$);IFMID$(A$,I,1)=" " THEN15020
15010 W$=W$+MID$(A$,I,1);NEXT
15020 W$=MID$(A$,I+1,LEN(A$))
15030 OPEN1,8,15;PRINT#1,"001"+W$+" "+W$;CLOSE1;PRINT;GOTO10
17020 FORI=1TOLEN(A$);IFMID$(A$,I,1)=" " THEN17020
17010 NEXT
17020 IFLEN(MID$(A$,I+1,LEN(A$)))<>6 THENPRINT"INVALID TIME";GOTO10
17030 PRINT;T$=MID$(A$,I+1,LEN(A$));GOTO10
18000 PRINT"ARE YOU SURE (Y/N) ";
18010 GETS$;IF S$="Y" THEN18010
17000 IF S$="N" THENPRINT;GOTO10
17030 IF S$="Y" THENPRINT;
17040 GOTO10
17050 IF S$="N" THEN17020
17060 RETURN
17070 FORI=1TO15;FORJ=36873,15;POKE36876,135;FORGH=1TO250;NEXT;POKE36876,0;POKE3687
```

```

9,0
20070 GETK$: IFF $="*THE#20030
20040 RETURN

```

Listing — Help

```

0 REM HELP PROGRAM      (C) 1984 SIMON MILLS
5 CM=17
10 PRINT"HELP VERS 1.1"POKE36879,27
20 PRINT"1) LIST COMMANDS"
30 PRINT"2) EXPLAIN COMMANDS"
35 PRINT"3) RETURN TO CP/V"
40 PRINT"4) SELECT OPTION"
50 GETA$IF A$="" THEN 50
60 IF A$="1" THEN 100
70 IF A$="2" THEN 300
75 IF A$="3" THEN 5000
80 GOTO 50
100 RESTORE:PRINT"J":FOR I=1 TO CM:READ A$:PRINT A$,NEXT I:PRINT
110 GOTO 20
200 DATA JR,REN,ERA,SYSGEN,ERR,VAL,LOAD,LIST,TYPE,TIME,TAPE,INIT
210 DATA DR,BAS,COPY,HELP,SETTIME
300 PRINT"J"
310 INPUT"COMMAND" C$
320 RESTORE:FOR I=1 TO CM:READ A$:IF C$=A$ THEN 340
330 NEXT I:PRINT"NO COMMAND" GOTO 20
340 ON I GOSUB 400,500,600,700,800,900,1000,1100,1200,1300,1400,1500,1600,1700,1800
,1900,2000
345 POKE 199,0
346 GETA$IF A$="" THEN 346
347 PRINT"J" GOTO 20
350 PRINT"J" C$
360 FOR I=1 TO LEN(C$):PRINT"~":NEXT I:PRINT
370 RETURN
400 GOSUB 350
410 PRINT"LIST OUT THE DIRECTORY"
420 PRINT"OF THE DISK IN THE"
430 PRINT"DRIVE."PRINT"DIR"RETURN
500 GOSUB 350
510 PRINT"RENAMES THE SPECIFIED FILE."
520 PRINT"REN NEWNAME=OLDNAME"
530 RETURN
600 GOSUB 350
610 PRINT"ERASE THE SPECIFIED FILE."
620 PRINT"ERASE FILENAME"
630 RETURN
700 GOSUB 350
710 PRINT"MAKE A COPY OF CP/V ONTO ANOTHER DISK."
720 PRINT"SYSGEN"RETURN
800 GOSUB 350
810 PRINT"GIVE ERROR NUMBER AND NAME IF ONE OCCURS."
820 PRINT"ERR"RETURN
900 GOSUB 350
910 PRINT"VALIDATE THE DISK IN THE DRIVE."
920 PRINT"VAL"RETURN
1000 GOSUB 350
1010 PRINT"LOAD A PROGRAM FROM THE DISK DRIVE AND RUN IT."
1020 PRINT"LOAD PROGRAM"RETURN
1100 GOSUB 350
1110 PRINT"LOAD A PROGRAM FROM TAPE AND LIST IT."
1120 PRINT"LIST PROGRAM"RETURN
1200 GOSUB 350
1210 PRINT"LOAD A PROGRAM FROM THE DISK AND LIST IT."
1220 PRINT"TYPE PROGRAM"RETURN

```

4 PROGRAM

```

1300 GOSUB350
1310 PRINT"DISPLAY THE TIME (SET WITH SETTIME)."

```

Find

This is a short but useful program which will locate variables, strings of text or line numbers within a program

How it works

60000 input required thing
60040-60060 search program
60100-end match with strings of characters in program

Variables

BL beginning of line
EL end of line
SS string to search for
The program works by searching through your program looking for the first letter of the required string. If the two letters match, it then looks further ahead to see if the whole string matches

Renumber

This program will renumber a program from line 0 in steps of one. It should also work on the Commodore 64

How it works

60000 main program
61000 search for GOTO, GOSUB, ON, THEN
62000 change line number

Variables

BP beginning of memory
EP end of memory
S location of line number in memory
B beginning of line number
E end of line number
OL, LS last line number
NL\$ new line number
The program works by finding a

line number and all of its references in GOTOs, GOSUBs etc. It then changes all of these branches and goes on to the next line. Because everything is renumbered, the program is fairly slow. Commodore 64 owners could compile it.

Listing — Find

```

60000 INPUT"SEARCH FOR " : SS$ : PRINT"J" : IF SS$="" THEN RUN
60010 BP=PEEK(43)+PEEK(44)*256 : BL=BP+2
60036 EL=PEEK(BL-2)+256*PEEK(BL-1)-1
FOR I=BL TO EL
60045 IF PEEK(BL)+PEEK(BL+1)*256=60000 THEN END
60050 IF CHR$(PEEK(1))=LEFT$(SS$,1) THEN 60100
60060 NEXT BL : BL=EL+3 : GOTO 60036
FOR J=1 TO I+LEN(SS$)-1 : AS$=AS$+CHR$(PEEK(J)) : NEXT
60110 IF AS$=SS$ THEN PRINT SS$ " AT LINE " : PEEK(BL)+256*PEEK(BL+1)
60120 AS$="" : GOTO 60060

```

Listing — Renumber

```

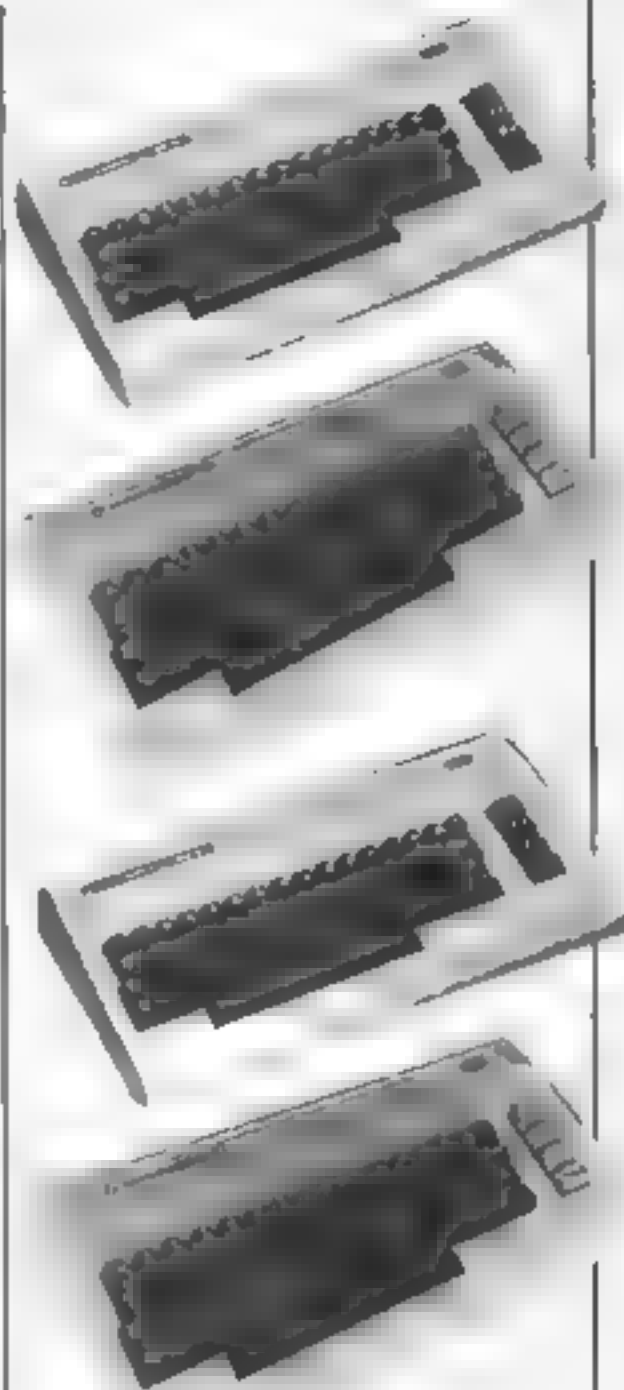
60000 SL=0 : C=0 : IN=1 : BP=PEEK(43)+256*PEEK(44) : V=256 : GF=1
60010 S=BP+2 : EP=PEEK(45)+PEEK(46)*V-1
60020 IF PEEK(S)+PEEK(S+1)*V=60000 THEN PRINT"FINISHED" : END
60030 GOSUB 61000
60040 IF GF>0 THEN GOSUB 62000
60050 POKES,LO : POKES+1,HI : PRINT"RENUMBERED " : C
60060 C=C+IN : S=PEEK(S-2)+PEEK(S-1)*V+2
60070 GOTO 60020
61000 NL=SL+C : CO=0
61010 IF NL-V>0 THEN NL=NL-V : CO=CO+1 : GOTO 61010
61020 LO=NL : HI=CO : RETURN
62000 FOR I=BP+4 TO EP
62010 P=PEEK(I) : Q=PEEK(I+1)
62011 IF P+Q*V=60000 THEN I=EP+1 : GOTO 62030
62015 IF P=0 THEN NL=0

```

VIC-20/CBM 64 PROGRAM

```

62015 IFF=44ANDFL=1THEN62100
62020 IFF=137ORP=141OR(P=167ANDQ>47ANDQ<53)THEN62100
62030 NEXT: IFF=1THENG=0
62040 RETURN
62100 B=I+1:GF=2
62110 FORJ=BTOEP
62120 IFFPEEK(J)=0ORPEEK(J)=55THENE=J-1:J=EP+1
62125 IFFPEEK(J)=44THENE=J-1:J=EP+1:FL=1
62220 NEXT
62320 OL=0:LS=PEEK(S)+PEEK(S+1)*V
62310 FORK=6TOE
62320 N=VAL(CHR$(PEEK(K))):PN=(10+(E-K)):OL=OL+N*PN
62330 NEXT
62340 IFINT(OL)=LSTHEN62400
62350 GOTO62470
62400 NL$=MID$(STR$(SL+C),2,LEN(STR$(SL+C)))
62410 OL$=MID$(STR$(OL),2,LEN(STR$(OL)))
62420 Z$="000000"
62430 NL$=MID$(Z$,1,LEN(OL$)-LEN(NL$))+NL$
62440 FORL=0TOLEN(NL$)-1
62450 POKEB+L,ASC(MID$(NL$,L+1,1))
62460 NEXT
62470 GOTO62030
    
```



POOLSWINNER

THE ULTIMATE POOLS PREDICTION PROGRAM

- **MASSIVE DATABASE** Poolswinner is a sophisticated Pools prediction aid. It comes complete with the largest database available - 2200 matches over 10 years. The database updates automatically as results come in.
- **PREDICTS** Not just SCOREDRAWS, but AWAYS, HOMES and NO SCORES.
- **SUCCESSFUL** SELEC guarantees that Poolswinner performs significantly better than chance.
- **ADAPTABLE** Probabilities are given on every future choice as many selections as you need for your bet. The precise prediction formula can be set by the user - you can develop and test your own unique method.
- **SIMPLE DATA ENTRY** All English and Scottish team names are in the program. Simply type in the reference numbers from the screen. Or use FIXGEN to produce future list automatically - see below.
- **DISC/MICRODRIVE COMPATIBLE** All versions except Apple and IBM are supplied on tape, with simple instructions for conversion to disc/microdrive operation. (This seasons results are supplied with the packages so that predictions can start immediately.)



A set of 35-tape instructions booklet

AVAILABLE FOR Spectrum (48K), Commodore 64, VIC 20 (+16K), AMSTRAD CPC 464, BBC B, Atari (48K), ZX81 (16K), Dragon, Apple II, IBM pc

PRICE £15.00 (all inclusive)



FIXGEN 84.5

AT LAST! No more struggling to hours to get the future set into the computer. FIXGEN has been programmed with an English and Scottish fixtures for 1984/5. Simply type in the date and the full fixture list is generated in seconds. Fully compatible with Poolswinner.

POOLSWINNER with FIXGEN £16.50 (all inclusive)
Fixgen alone £5.50

COURSEWINNER v3

THE PUNTERS COMPUTER PROGRAM

Coursewinner is designed to allow you to develop and test your own unique winning system. Using information from daily newspapers or 'Sporting Life' the most important factors can be input and analysed. This program is supplied with a database detailing best trainers and jockeys, and effect of the draw for all British courses. (Flat & National Hunt.)

AVAILABLE FOR Spectrum (48K), Commodore 64, BBC (B), Dragon, Atari (48K), Apple II

PRICE £12.50 (all inclusive)

AVAILABLE RETURN OF POST FROM



phone 24 hrs



WILMARS



phone 24 hrs

37 COUNCILLOR LANE, CHEADLE, CHESHIRE. ☎ 061-428 7425

• PANAMINIC • QUENDATA • SPECTRUM • BBC • JUKI • EPSON •

MICRO-LINK

Look no further — only a phone call away for the most competitive link between the manufacturer and the customer in printers, computers, software, monitors, etc.....

AND OUR NEW M.S.X. QUICK DISK DRIVE

TEL: LISS (0730) 895296/895273

• BBC • JUKI • EPSON • CUMANA • CANNON • JPI80A and COSMOS •

• QUENDATA • SPECTRUM •

• CUMANA • CANNON • JPI80A and COSMOS •

ASTROLOGY

for beginners

A Starter Pack comprising a simple program to calculate a horoscope, an introductory booklet and 2 self-teaching programs (how to interpret the horoscope)

only £11.50

No previous knowledge required

48K Spectrum, 48K Onic, BBC Electron, Dragon, Tandy Color TRS80, Sharp MZ80A, K700, Genea-Colour Genea, CBM 64 & PET 3000 4000-8000, Atari, Amstrad

Please send me Astrology Starter Pack for use on
I enclose a cheque/PO U.K. for £11.50 (inc p&p) Outside UK add 50p/£2.50 disk, or
I enclose a large see for free catalogue

Address

ASTROCALC Dept HCW 67 Peascroft Road
Hemel Hempstead, Herts HP3 8ER tel. 0442 51809

Two extended reviews of new software for your Commodore. Read what our experts say

**Micro Magpie
CBM 64
£39.95 (disc)**

Audiogenic, PO Box 89, Reading, Berks

If you want to keep records containing information, the usual approach is to keep a card index. This works well enough, but is tedious if searches for data are to be made. Most computer databases store 'cards' of data on disc in a similar but vastly superior manner. Magpie is such a database.

When used, you are presented with a 'form' which contains the information to be stored on any one card. You enter your data and it's saved for future access. You can then perform almost any kind of search, sort or manipulation you wish at high speed.

Magpie seems to be superior to many databases in that it's not fixed in its format. Many systems specify quite tightly how you can manipulate your data. Magpie leaves this open-ended and the choice is yours. How is this one? Simple, a high level language comprising of Macros (procedures) is available and each operation is built up from procedures or sub-procedures.

On booting the program, you are first asked for details of your disc drive and primer, then you enter the first menu. This program uses 'pop-up' menus extensively and you can move around almost exclusively by using just three of the function keys. I could try to discuss how the system operates in some detail, but the editor wouldn't let me. The ample instruction book does the job much better than I can.

Each application, be it an address list or stock list, is called a system. If you're simply going to crunch some data, you 'GET' the relevant system and run the required procedures. The creation of a system is somewhat complex, but the guide book plus some worked examples help. To give extra assistance, there is an accompanying 'HELP' disc in the package.

As I mentioned earlier, this program is extremely flexible. You can have two sizes of form: one the size of the normal screen (24 rows of 40 characters) or a scrolling form (66 rows of 80 characters). The size of the second screen can be tweaked to suit your requirements. The data manipulation procedures available include: input a record,

In-depth

amend a record, search for a record (using multiple criteria), sort, output graphical information — and these are just examples.

If I do have a criticism for this program, it is that it takes a little too much effort to create a system. This means that users wanting a pre-defined system may not be inclined to want to learn how to program the beast. Computer enthusiasts who want to maintain a database, however, need look no further. As far as I can see, there's just no opposition to this product on the market at present. **A.W.**

instructions	90%
display	90%
ease of use	90%
value for money	95%



**Extended
BASIC
CBM 64
£19.95**

Mushroom, 193 Rommany Rd London SE27 9PR

Extensions in the 64's BASIC are becoming common beasts. This is the fifth I've seen. Each time I review one I ask myself the question, "How is this one different from and better than the rest?" Much to my delight, this program has a number of useful and valuable features. It also has some very irritating aspects, as I will reveal.

As far as I can determine, the package appears on cassette only. Since turbo load is not used, it takes some time. On running, the code hides behind the ROMs and only pinches about 25k.

As expected, the areas extended are graphics, sound and structure. Rather than re-invent the wheel, I'll mention the outstanding features of each section. Both hi-res and multicolour modes are supported with the usual drawing commands. CIRCLE and FILL aren't supported, but triangle and square fills are there.

You can extend the flexibility of the drawing commands by selecting how the points are plotted, e.g. OR, EOR or AND with background. A useful addition is a graphics dump to printer. You can even print multicolour screens with the four pens indicated differently. The usual sprite commands are supported and they work well enough.

The structured programming aspects include FOR-ELSE REPEAT UNTIL and procedures. Procedures can be named and global parameters passed. That's the usual stuff covered now the unusual bits. The package supplies a BBC style assembler. This allows you to put your source code in the middle of your BASIC program. The code is enclosed by square brackets and the system assembles the code when the brackets are met in a program. Multiple passes are used allowing the use of labels.

You can either use the object code in your program or use the inbuilt commands to save and reload the code. A CALL command is supplied to enable you to run your machine code and pass values to the various registers. This command will even recognise the labels you use in the assembler.

There are a number of commands which offer multiple options. The option adopted depends on which bit of the parameter is set. This is rather a messy technique requiring regular reference to binary to decimal conversion tables.

Another irritating aspect relates to graphics. Each switch

between graphics modes will clear the screen. This prohibits the drawing of graphics whilst in text mode and the subsequent switching in of the graphics. Just to add to the anguish, you can transfer the contents of the text screen to the high-res screen. Fine when you want this feature, but I couldn't find a way of disabling it. Consequently, every time the program finished I go READY printed on my hi-res picture.

Overall this is a powerful and memory economical package which represents excellent value. There are a number of inexplicable omissions which are careless but overall the balance is good. The provision of a good quality assembler is a positive bonus. In fact, I wish they would market it on its own. If you want an extended BASIC, try this one. At the price, it's the best I've seen. **A.W.**

instructions	90%
graphics	N/A
ease of use	60%
value for money	95%



Whoops!

Due to unavoidable production difficulties, we were obliged to rerun Money Maze for the C64 in HCW 96, January 22. We're sorry about this, but it was beyond our control

View from abroad

In the letters columns of various magazines we frequently read complaints regarding the various problems people encounter in satisfying their computers appetites. I point out that there is a sizeable computer public which lives in neither Britain nor the States — a public which reads your magazine (four months old) with envy and is left to the mercy of local importers' retailers and dealers (a fate worse than blowing a chip) or your mail order companies.

Most of these companies are very helpful to us desperate foreigners, especially ones from the old colonies like New Zealand, but here are a few distinct exceptions and the distances involved make it a bit hard to just phone them and complain.

I would like to publicly thank those at HCW and Argus in general for their attitude to non British readers, people should be made aware of the sort of people who run this magazine and I say a most heartfelt thanks to them.

If that's not worth £5 of software then what is? Nothing like a bit of foreign aid (Only kidding colonial sense of humour).

Mark Ottaway, New Zealand

How could we resist? The only problem is that you forgot to tell us which computer you own, Mark, so we can't send you any software. Let us know and we'll pack a little treat off to you

Atari

paid

wanted

Please can you help me. I have recently bought an Atari 400 16K computer, but I can't buy any software in my area.

Please could you put me in touch with another 16K

Atari owner so that we can swap and lend each other games. I eagerly await a reply

Jason Sawwell, 65 Rush Green Rd, Romford, Essex RM7 0PT

Crime

Protest

Please can someone tell me why the ZX81 is being pushed aside. Today I went to John Menzies for a 16K RAM pack for my ZX81, but they told me they don't stock ZX81 products any more.

And when I bought the Christmas edition of HCW I found to my horror that the Amstrad had been put in the ZX81's place in the charts.

Now maybe I can't do anything about the charts, but who says I can't object to the ZX81 going out. Please, everyone, don't desert us! There are still a lot of ZX81 owners around.

Now I can say thanks for the brilliant ZX81 games you put in your magazines.

Steven Wilson, Stoke-on-Trent, proud ZX81 owner

Join the

club

I'd like to let readers know about a club which has been opened for users of the Amstrad CPC464. The club produces a month's tape magazine called The Magazine and it includes news, games and utilities reviews, readers letters, software discounts of 15 per cent, exchange club pen pals and more. Membership is £3 for one year.

The club was founded in December 1984 and the second issue is out in January.

David Baxter, Amsclub, 42 Mt Stewart St, Carlisle, Lancashire

VIC-20

supporters

There is too much Spectrum propaganda in all magazines and not enough for other computers. The Spectrum has many disadvantages — bad keyboard, poor sound, no switches, no joystick sockets and above all it gets too hot too quickly. The games are childish and

boring.

There are too many Spectrum owners showing off their pieces of smug plastic and rubber. They need someone to keep them quiet by telling them the facts.

The VIC-20 isn't dead, but stronger than ever. It has sold more than two million computers worldwide. It's still selling fast, although Commodore has stopped making it. The software is excellent and it has many advantages — proper keyboard, amazing sounds, expansion capabilities to 64K, joystick port switch. It's the only computer under £50 to have excellent colour graphics, easy BASIC language, books, software.

Long live VIC-20!

Alex Sanny, London

Amstrad

more

I'm very pleased to have the opportunity to write in to you. I have to say that your magazine is the best and I hope the price remains as it is for much longer.

I'm a VIC-20 owner. Although the VIC has been much criticised by Spectrum owners I think they're just jealous. Although the VIC has only 32K it can be expanded to 16K, 32K or even 64K.

Thanks for your support for this machine which some people say is dead. It isn't. How can it be after selling two million worldwide? How can it be dead where there are superb games still coming out? For its low price it's the best around — the proper keyboard and vast amount of software prove that.

Thanks for publishing program listings for the VIC — and long live the legendary VIC-20 and HCW!

A P Pruchomos, London

Part on the

bench

I would like to congratulate you on publishing yet another excellent game for the VIC-20, by Paul Cockerton in HCW 91.

It was worth typing in, even I had to type in the data all over again. It really was good and had terrific graphics. Well done, HCW and Paul Cockerton.

I have recently joined the

Interceptor Software Club, which has free membership and is excellent value for just one stamp and an envelope. Posters, latest releases and special offers — it's great!

Ian Longdon, Hinckley

The address for the Interceptor Software club is Lindon House, The Green, Tadlev, Hants.

Helping

you

When I first bought a computer I found it hard to get started because I knew nothing about how to operate it. I began with an Oric 1 but now I have a Commodore 64.

If anyone needs help in operating or programming the Commodore or Oric 1 I would be only too pleased to help. Please write to me.

Christopher McKobb, 1 Merdene, Vange, Essex

Mark C

feared

In HCW 91 the buyers guide stated that the Oric Atmos has a 64K memory. Actually the Atmos only has a 48K memory.

I know Oric isn't too popular but can you make room for a few more Atmos games?

Craig Taylor, Newcastle upon Tyne

We do feature Oric programs as often as we can. We will continue to do so as long as we have good programs written and submitted by you, the readers.

Atari

problems

What, or what goes Barry Star think he's on about (HCW 92)? He calls the TI-99-4A a dead computer. Has he never heard of the USA? The amount of hardware and software produced for the TI is enormous.

Since when has the Spectrum been supported as much as the TI is, by such large companies as Milton Bradley, Parker Brothers, Atari, Navarone and Adventure International?

The TI-99-4A may have been a dead computer in Britain, but it is now being reborn with the help of

Parco Electronics and Arcade Hardware who are importing a huge amount of American equipment.

Does Barry realise how many TI owners there are? Over two million — and 200,000 of those are in Britain. If it hadn't been for the introduction of the TI-99-4A dear Sir Clive might still be toying with his ZX80. As for the amount of good games available for the TI, take your pick from Miner 2049er, Buck Rogers, Popeye, Frogger, Demon Attack, Bigfoot and many more. The list is almost endless.

As for the new Spectrum+ and its keyboard — well, poor Sir Clive!

Simon Chell, Melton Mowbray

Intercepting

the club

I am chairman of the Basingstoke Commodore Users Group and we recently arranged two visits on consecutive Saturday mornings to Interceptor Micros by Lady.

We were warmly welcomed by Julian Jones and his staff, and although they were very busy, Mr Jones personally took time to show us around and explain the workings of his company.

The BCUG would like to thank Interceptor Micros for their kindness and we wish them all the best for 1985.

D Love, BCUG

Send your letters to Letters, Home Computing Weekly No.1 Golden Square London W1R 3AG. Don't forget to name your computer — the best letter could win £5-worth of software. Got a problem with your micro? We'll soon be starting a queries page, so send your technical questions to Queries at the above address.



Mirage

SOFTWARE &
DISTRIBUTION

1 Sandy Road
Top Floor
Seaforth, Liverpool
L21 3TN

Tel 051 928 8443/4

PROGRAMMERS

WE ARE LOOKING FOR TOP QUALITY PROGRAMMES TO MARKET IN THE UK AND ABROAD. THE PROGRAMMES MUST BE OF TOP QUALITY AND IN MACHINE CODE WITH GOOD GRAPHICS AND SOUNDS AND ORIGINAL CONCEPT. WE ARE LOOKING FOR PROGRAMMERS TO CARRY OUT WORK ON NEW MACHINES SUCH AS THE C.B.M./16 AMSTRAD AND M.S.X. WE CAN SUPPLY THESE MACHINES TO CARRY OUT WORK FOR MIRAGE. WE ARE ALSO OFFERING £500 PRIZE FOR THE BEST PROGRAMME RECEIVED BY THE END OF FEBRUARY 1985 WHICH WE WILL DECIDE TO MARKET. WE OFFER AN OUT RIGHT PAYMENT OR 10% PLUS PAYMENT OR 20% ROYALTIES. FOR MORE INFORMATION CONTACT THE SOFTWARE MANAGER HE WILL BE GLAD TO LISTEN TO ANY QUESTIONS YOU MAY HAVE.

PROGRAMS COMING SOON

THE COUNTS CASTLE

COMMODORE 64

£6.95

CASTLE GREYSKULL

48K SPECTRUM

£5.95

SALES MANAGER
T.C. SAPHIER

SOFTWARE MANAGER
C.A. SAPHIER

NOTE WE HAVE MOVED TO NEW PREMISES

Legend
48K Spectrum
£14.95

Century, Portland Hse, 12-13
 Greek St, London W1V 5LE

Legend is the largest package for a game that I've ever seen. Within that package, besides the tape, is a book, a map, and a six page instruction booklet, with a plastic key overlay.

The book is described as a mighty fantasy sage, and is set in no particular era or land. There was a faint hint that reminded me of one of the countries now coloured red on the world map. I thoroughly enjoyed it. It deserves a better fate.

The game doesn't match up to the book at all. The program is in two parts, with the first spent recruiting forces to be used in the second. In the first part you

are continually given options. You might be asked 'do you want to see so and so? Y/N'. If you answer 'yes' you see him. If you answer 'no' you are captured and taken to him anyway. Every now and again you face a sword wielding figure and fight a not very convincing duel.

I got the impression that the whole game had been written around the duelling scene. **B.B.**

instructions	100%
graphics	75%
playability	70%
value for money	75%



Storm Warrior
CBM 64
£9.95

Front Runner, 620 Western Ave,
 London W3

Have you ever day-dreamed about being a super-hero. Well Storm Warrior may be the answer to your dream.

You take the part of the warrior on a quest to find and destroy the Sacred Skull. You have the choice of five levels of difficulty, ranging from Beginner to Master. Once this is chosen you start your journey through the game's 12 screens — for the less adventurous there is a demonstration mode.

The games range from hitting a ball of light past an evil creature which throws thunderbolts at you, battling on a bridge, to fighting in an underground

cavern with assorted nasties. The program is graphically very good and the sound effects and music match, but overall the game has one huge drawback — it is appallingly difficult. For the hardened games player this may seem trivial, but any game which, even at beginners level, makes it hard to get past the second screen, seems to be tough going on the new user.

Beautifully presented, but marred by its difficulty. **M.W.**

instructions	85%
graphics	100%
ease of use	50%
value for money	75%



The Sandman
Cometh
48K Spectrum
£10.95

Star Dreams, 17 Barn Close,
 Seaford, Sussex BN25 3EW

Yet another text/graphic adventure game with a tangible prize for solving it. This prize is a relatively modest one of a weekend for two in Paris, which can't be bad. Whoever wins the prize will certainly have earned it, believe me.

After about thirty man hours spent playing the game I know what solution is expected, but I'm not sure that I have the full answer yet, such is the complexity of the problem. The game consists of two parts, and only completing certain tasks in the first can you get into the second. Although the format is pretty much the same in both parts, there are different tasks, and different scenes.

The title gives a clue to the fact that you are dreaming all the events which are taking place. Because of this, many bizarre things can happen, and often do.

Programming is a mixture of machine code and BASIC, which is a bit slow at times, but it is very well done nevertheless. Well worth buying, even if you don't get to Paris. **B.B.**

instructions	100%
graphics	90%
playability	100%
value for money	90%



A taste for adventure

If you like adventures then you'll love this page. Read on to find out what our experts think

Magic Stone
CBM 64
£5.95

Audiogenic, PO Box 88, Reading, Berks

One of the most noticeable aspects of this program is its unbelievably long loading time. Of course, with the common usage of turbo loads, a non-turbo game sticks out like a sore thumb.

Once it's up and running you're greeted by a quite competent program. The author has elected to use redefined graphics and sprites to generate pictures rather than high resolution. This has been done well and any weakness is made up for by the instantaneous appearance of pictures.

The idea is to search a haunted mansion for a magic

stone, apparently a precursor to the transmutation of gold. The normal two-word type of parser is used.

My main moan is with the standard of responses to error. Phrases such as BAD ACTION or BAD SOLUTION simply aren't good enough. Additionally, objects shown in the pictures often aren't recognised by the interpreter. Most odd!!

On the whole, an above average game which responds rapidly and is fairly testing. Newcomers to adventures should certainly give it a try. **A.W.**

instructions	70%
graphics	70%
ease of use	75%
value for money	85%



Time Traveller
CBM 64
£5.95

Audiogenic, PO Box 88, Reading, Berks

Audiogenic has recently entered the adventure market with some new games. This is one of them. After taking the dog for a walk (it's non-turbo) all is revealed.

What we have is a text/graphical adventure of a quite good quality. User defined characters and sprites are used in the pictures and displays are drawn instantaneously. As you take or drop items, they appear in the picture. This is useful and helps with the atmosphere. Additional nice touches include computer text and the display simulates paper being printed on a tractor feed printer.

The plot is fairly standard. You must search various time zones and locate the broken pieces of the magic hourglass to restore the delicate balance of time.

Two-word commands are recognised and the responses are rapid. One or two incongruities indicate an occasional lapse, but they're non-fatal, fortunately, and simply irritate the player.

Adventure fanatics will probably find this game easy meat, but newcomers to adventures will find it a challenge and good fun. The price is good and overall quality above average. **A.W.**

instructions	70%
graphics	75%
ease of use	75%
value for money	85%



TOP 20 Gallup Software

Compiled by

HCW is proud to present the Gallup software chart — the one to believe in. Gallup's reputation as a credible market research company is second to none. This software study is carried out nationwide in both independent and chain stores, on a weekly basis. This is the chart to watch out for — the one you know you can trust.

		Week Ending January 15, 1985										
LAST WEEK	MOVE	THIS WEEK	TITLE	PUBLISHER	SPECTRUM	CBM 64	BBC	ELECTRON	VIC 20	AMSTRAD	ATARI	OTHERS
1	●	1	Ghostbusters	Activision	●	●						
3	▲	2	Match Day	Ocean	●							
2	▼	3	Daley Thompson's Decathlon	Ocean	●	●						
6	▲	4	Booty	Firebird	●	●						
11	▲	5	Football Manager	Addictive Games	●	●	●				●	●
07	▲	6	Manic Miner	Software Projects	●	●	●				●	●
4	▼	7	Air Wolf	Elite	●							
40	▲	8	Blockbusters	Macsen	●	●	●	●				
9	●	9	Hunchback II	Ocean	●	●						
14	▲	10	Elite	Acornsoft			●	●				
22	▲	11	Pyjamarama	Mikro-Gen	●	●					●	
15	▲	12	Skooldaze	Microsphere	●	●	●					
13	●	13	Knight Lore	Ultimate	●							
12	▼	14	Beach-Head	US Gold	●	●						
5	▼	15	Starstrike 3D	Realtime	●							
24	▲	16	Combat Lynx	Durrell	●	●					●	
31	▲	17	Kong Strikes Back	Ocean	●	●						
16	▼	18	American Football	Mind Games	●	●					●	
18	▼	19	Monty Mole — Wanted	Gremlin Graphics	●	●						
10	▼	20	Hunchback	Ocean	●	●	●	●	●			

SPECTRUM		BBC		COMMODORE	
Top Ten		Top Ten		Top Ten	
1	Ghostbusters Activision	1	Elite Acornsoft	1	Ghostbusters Activision
2	Match Day Ocean	2	Blockbusters Macsen	2	Raid over Moscow US Gold
3	Daley Thompson's Decathlon Ocean	3	Manic Miner Software Projects	3	Daley Thompson's Decathlon Ocean
4	Airwolf Elite	4	Jetpac Ultimate	4	Staff of Karnath Ultimate
5	Booty Firebird	5	Eddie Kidd Jump Challenge Martech	5	Booty Firebird
6	Knight Lore Ultimate	6	Sabre Wulf Ultimate	6	International Football Commodore
7	Skooldaze Microsphere	7	Football Manager Addictive Games	7	Hunchback II Ocean
8	Starstrike 3D Realtime	8	Srabble Leisure Genius	8	Bruce Lee US Gold
9	Hunchback II Ocean	9	Hobbit Melbourne House	9	Football Manager Addictive Games
10	Pyjamarama Micro-Gen	10	Return to Eden Level 9	10	Beach-Head US Gold

HOME COMPUTING WEEKLY CLASSIFIED

Lineage:
35p per word



01-437 0699
EXT 342.

Send your requirements to:
Becki Wilson
ASP LTD.
1 Golden Square,
London W1R 3AB

Semi display: £7.10 per single column centimetre
Ring for information on series bookings discounts.

All advertisements in this section must be prepaid.
Advertisements are accepted subject to the terms and
conditions printed on the advertisement rate card (available on request).

Situations Vacant

★ PROGRAMMERS ★

Top Quality original Spectrum/CBM 64 programs needed for worldwide publication in 1985. Instant cash for outstanding games. For immediate evaluation send tape to

Gamma Software
12 Milverton Road,
London, NW6 7AS

Clubs

SPEC PEN PALS UK

Attention all computer-owners!
Let us put you in touch with others
where no one else has reached before.
Send s.a.s. for application form and
more details to:— A Simmons, 40
Clayburn Circle, Basildon, Essex.

For Hire

To hire a computer from Spectrum
48K upwards, please phone or write
to Business & Computer Services,
294a, Caledonian Rd., London N1
1BA Tel. 01 607 0157

WIN A COLOUR T.V.

Spectrum - Oric - Atmos
Software Library
FREE MEMBERSHIP —
FREE ENTRY TO DRAW
S.A.E. FOR DETAILS TO:—
HIRE SOFT, 113 BROOMFIELD RD,
MARSH, HUDDERSFIELD (state micro)

BBC Software hire over 200 titles
available including games, educa-
tional utilities. Send stamp for
details to Magicsoft (C), 18, Elm
Grove, London.

ORIC, ATMOS, COMMODORE 64, LYNX

Over 150 Oric and 200
Commodore 64 titles.
Stamp for details:—
**LES WILSON, 100 BLENHEIM
WALK, CORBY, NORTHANTS.**

Hardware

CBM 64 VIC-20 TAPE TRANSFER — DUAL CASSETTE INTERFACE

It is quick and easy to transfer any cassette
program with TRIGSOFT's DCL I inter-
face. Duplicates all turbos, m/code, data
files etc. If a program can be loaded it will
be transferred exactly on a second datasette.
Send £10.00 inc p&p to: Trigsoft, Marshfield
House, 4 Burnett Place, Bradford BD5 9LX
7 day money back guarantee
If not 100% satisfied

Libraries

BBC B/Electron/Dragon software
library — Membership £5.00. —
Tapes 1 (+ 30p P&P). Stamp for
details. E. Tucker, (H) 58, Blen-
heim Walk, Corby, Northants.

Software

WD Software For the QL:—

Utilities (3rd ed) (base £5.50)
View 60-file DIRECTORY on one screen, one-key LOAD, COPY or print 60 files with one key
(allows for namesakes). Multiple FORMATTING to prevent corruption by stretching of
tape. TOOLKIT to give dated, numbered modules in program development. PRUNE: old
files to release space (one key DELETES a file). Full instructions in QUIL file. Use up to 6
EXTRA MICRODRIVES (add on your Spectrum ones)!

WD Morse Tutor (base £4)
Specification as for Spectrum, but no speech (hurry up, Currah!)

Ref QL (1st ed) (base £1)
100+ useful QL references in an ARCHIVE file.

For the 48K Spectrum:—

WD Morse Tutor (base £4)
From absolute beginner to beyond RYA and Amateur Radio receiving. Adjustable pitch.
Set speed to your test level (4-19 wpm). Learn code with single characters, progress from
groups with wide inter-character spaces to random sentences; decrease spacing to normal.
Write down what you hear, then CHECK on Screen or Printer or LISTEN to phonetic
TALKBACK from Currah MicroSpeech if fitted. Also own message, random figures,
letters or mixed. 16K version on special request (no speech, only 5 sentences instead of 100).

Tradewind (base £4 — was £5!)

Jersey Quest (base £4 — was £5!)

Prices

Spectrum Cassettes — base price only
QL or Spectrum Microdrives — £4.50/cartridge plus base price
Two or more programs on one cartridge — pay cartridge + base, e.g. WD Utilities and Ref
QL for £11, but IMPOSSIBLE to mix QL and Spectrum programs on one cartridge. Send
YOUR FORMATTED cartridge and pay base price only (but OURS have been FORMATTED
AT LEAST six times!) Send OUR cartridge and 25p to update earlier editions.

available from **WD Software Hilltop, St Mary, Jersey, C.I.**
Tel (0534) 81392

Amstrad. Hangman, with character
generator. £5.00. 150 word library
supplied. Save, load, your own up
to 500 words possible. Gamesware,
54 Wycliffe Avenue, Newcastle
upon Tyne, NE3 4RA

Software Educational

ANT MATHS For Atari 400/800 XL

A fun program to help with your child's
basic arithmetic. INC ANT MATHS
TUTOR AND ANT TABLES. £4.00

Cheques/POs to: EDUSOFT
HEATHBARN FARM, PETERSFIELD RD
MIDHURST, W SUSSEX GU29 9RL

Software Games

AMAZING OFFER

VIC-20/CBM 64 Games for £1.50
Pay after delivery. Write:—
STARGATE, PO BOX 1520,
DUBLIN 4.

AMSTRAD: THE TOMB OF KUSLAK
Strategic graphic adventure. 245 locations.
Fight, get, use, drop objects in a 5 level
quest. Rescue 4 treasures. New set up each
game, variable difficulty. All objects,
monsters shown. D. Mulr, 78 Peverell Pk
Rd, Plymouth PL3 4ND (PLY 265142)

Nationwide Shops and Dealers STAFFS



24 The Parade,
Silverdale, Newcastle
Tel: 0782 636911

Official Acorn computer
dealer and BBC service and
Information centre

Huge stocks available backed up by
sophisticated service dept for all popular
computers. Direct orders through Micronet
page no. 60043726

**DO YOU
OFFER
A REPAIR
SERVICE?
WHY NOT
ADVERTISE
IN OUR
REPAIRS
'N' SPARES
REGISTER.
PHONE
01 437 0699**

Repairs 'n' Spares Register

HEMEL COMPUTER CENTRE LTD.

For fast reliable repair service
of your SPECTRUM, BBC,
DRAGON, ATARI and
COMMODORE computers, e.g.
Send your 16/48K Spectrum to
us and we will repair and return
it for £20 + £1.60 p&p.

Hemel Computer Centre Ltd.,
52 High St., Hemel Hempstead,
Herts HP1 3AF.
Tel: 0442 212436

Repairs — ZX81 — Spectrum. Fast,
reliable repairs by experienced
engineers, having serviced Sinclair
computers since the introduction of
the ZX80. Our price is inclusive of
all parts, labour, postage and VAT
irrespective of fault. *No hidden
charges. *While-you-wait service
available. Spectrum £18.75. ZX81
£11.50. 16K Ram £9.95. Call or
send with cheque or P.O. to:
T V Services of Cambridge Ltd,
French's Road, Cambridge CB4
3NP. Tel (0223) 311371.
Commodore repairs. By Commo-
dore approved engineers. Repair
prices — VIC-20 modulators £6.50,
VIC-20 from £14.50, CBM 64 from
£18.00, C2N from £7.00, printers,
disk, etc. For more details write or
tel. G.C. Bunce & Son, 36 Burling-
ton Road, Burnham, Bucks SL1
7BQ. Tel: (06286) 61696.

TEXAS
SUPER SOFTWARE SAVERS WAS NOW

Up to	★ RI-SKI	3.90 1.99
50% OFF	★ HOT-WELLY	3.65 1.99
	★ BASHA-BUS	3.70 1.99
	★ NUCLR-PODS	4.25 1.99
	★ MAGGOT-MCH	3.90 1.99
guaranteed	★ CASINO	3.95 1.99
immediate	★ HOP-IT	5.95 2.99
and free	★ TORPEDO	4.60 2.99
delivery	★ MINI-KONG	4.65 2.99

★ BASIC/UNEXPANDED ★ EXT BASIC
For full details send large SAE for
free catalogue. Cheques or POs to:
MICRO-BYTE SOFTWARE
11 SAINT MARYS AVENUE, PURLEY,
READING, BERKSHIRE RG8 8BJ

TI-99/4A Software

TI-99/4A EDUCATIONAL SOFTWARE

Speak and spell, with excellent graphics,
plus a problem solver, both require speech
synthesizer plus extended basic. £5.00 a pair.
A. JENKINS, 1 PASSINGHAM AVE,
BILLERICAY, ESSEX CM11 2TD.

The contents of this publication, including all articles, plans, drawings and programs and all copyright and all other intellectual property rights therein belong to Argus Specialist Publications Ltd. All rights conferred by the Law of Copyright and other intellectual property rights and by virtue of international copyright conventions are specifically reserved to Argus Specialist Publications Ltd and any reproduction requires the prior written consent of the company.
© 1984 Argus Specialist Publications Ltd

SSN0264-4991

Cronies and Frogs in Mikro-Gen's Progs....

WITCH'S CAULDRON

SPECTRUM 48K £6.95



Gor blimey,
a hopping good
programme



MIKRO-GEN

44 The Broadway, Bracknell, Berks. 0344 427317

System 3 Software PRESENTS Multi Arcade Activity From America

• ALL TYPES OF TRADE
ENQUIRIES INVITED

MOTOCROSS! SUICIDE STRIKE JUICE!

SYSTEM 3 SOFTWARE
EXCLUSIVE IMPORT PRICE
WAS £24.95
NOW £7.95

No.1
USA
TITLES!



AVAILABLE AT: B&N, WH Smith's, Lloyds, John Mannings, Woolworths, and all good computer shops.

DISTRIBUTORS: Microcenter, Tiger Distribution and Centre Ltd.

At the start flash the lights, strap on your helmet, check your instruments, gun your engine and charge onto the course. Through the corners, up the hills, into the ruts and down the straight you manoeuvre for position and try to beat the clock. Stay ahead if you can. But whatever you do, stay on course. If you don't, one of two things will happen. You'll slow down and lose valuable seconds getting back into the race. Or worse, you'll end up on the seat of your pants. Who says computers don't like to get dirty?

Your agents risked their lives to find the enemy's secret headquarters. Now you're taking yours to destroy it. And they know you're coming. It's a race to your death by air. You'll squander your precious fuel supply. Needless to say, they don't lose parachutes on missions like this. As you soar over hundreds of miles of distinctly unhandicapped territory, the action is thick, fast and high-energy. Three-dimensional fighter aircraft, surface-to-air missiles, helicopter gunships. The attacks come from every direction. Even from behind.

Edison, the electric android, leads a frustrating life. All he really wants to do is build his circuit boards and go with the flow. But things keep getting in the way. Nikola — a negative influence — bug him regularly. There's lightning, but not the good kind. Flash, the lightning bolt, disconnects everything in his path. Which can be frustrating after a hard day on the circuit. And the cunning kilowatt is out to try peer Edison's brains. But our hero simply adds on. Juice is the ultimate survival event! You'll get a charge out of it. And a few jolts, too.

HOW TO ORDER

To purchase any of the above games, simply fill in your name and address on a piece of paper, enclosing your cheque made payable to: SYSTEM 3 SOFTWARE, and post to the address below. Please allow 7 to 14 days for delivery. Overseas Orders: Add £1.00 per game ordered.

System 3 Software

South Bank House, Black Prince Road, London SE1 1
Tel: (01) 587 0673

DO YOU WRITE
YOUR OWN
PROGRAMMES?
If you have a marketable
programme send it
to us for
evaluation.
Excellent Payment
Terms and
Marketing plans.
Send to Product
Development
Manager at the
address below.

